Division of Agricultural Sciences
UNIVERSITY OF CALIFORNIA

CONSOLIDATION OF CITRUS PACKING HOUSES IN THE ONTARIO-CUCAMONGA AREA

J. M. Tinley and G. W. Parks

CALIFORNIA AGRICULTURAL EXPERIMENT STATION
GIANNINI FOUNDATION OF AGRICULTURAL ECONOMICS

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Table of Contents

Tables

Index

Figures

Contents

CONSOLIDATION OF CITRUS PACKING HOUSES IN THE ONTARIO-CUCAMONGA AREA

by

J. M. Tinley[1] and G. W. Parks[2]

INTRODUCTION

Reason for Study.--In February, 1952, the Board of Directors of the Ontario-Cucamonga Fruit Exchange[3] requested the College of Agriculture, University of California, to undertake a study of the operations of the eight cooperatively owned citrus packing houses affiliated with the Exchange. In submitting the request the Board indicated that acreage planted to citrus fruit in the area had declined within recent years and that costs of handling citrus fruit in the several houses had risen appreciably, thus adversely affecting returns to growers. It was pointed out that similar conditions existed in several other areas of the state. In some of these areas attempts had been made to consolidate the operations of packing houses. Such consolidations had taken place in a somewhat haphazard fashion and had not proved satisfactory to growers. It was the opinion of the Board of the O.K. Exchange that, although consolidation of packing house operations in their area might be desirable, such consolidation should be undertaken on a more rational basis and only after a careful analysis of the economic and financial factors involved.

Discussion with the Board of the O.K. Exchange indicated that specific information was desired regarding: (a) past and probable future trends in the production and utilization of the various types of citrus fruit in the area served; (b) the influence of market factors upon the prices received by local packing houses for fruit; (c) the relation of volume of fruit handled and packed by the eight affiliated associations to unit costs of packing and, especially, the reasons for and magnitude of variations in such costs as between houses and as between years in the same house; (d) the physical resources of each packing house and the extent to which

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1/ J. M. Tinley, Professor of Agricultural Economics, Agricultural Economist in the Experiment Station, and Agricultural Economist on the Giannini Foundation.

2/ G. W. Parks, Field Assistant.

3/ Known colloquially as the O.K.Exchange. This colloquial name or the word "Exchange" will be used interchangeably with the longer title of this agency.

such resources were utilized; and (e) the financial status of each association in regard to net book value of assets, the extent and nature of long-term indebtedness, and the equity of growers in their associations.

Finally, the Board was interested in specific recommendations, based upon the above-mentioned aspects of the situation for (a) the most efficient organization of packing house facilities in the area from the standpoint of grower-members of the individual associations, and (b) an equitable plan for financing the transition from the existing to the recommended basis of organization. The Board considered the situation confronting some of the houses as so serious that at least a preliminary report was desirable before July 1, 1952, in order to allow individual associations ample time to consider reorganization before October, the end of the fiscal year for most of them. All the eight affiliated associations agreed to participate in the study. Field work on this study began in February, 1952, and a preliminary report with recommendations was presented to the Board of the O.K. Exchange and to the Boards of the eight associations in June, 1952.

Scope of the Study.--In view of the circumstances cited above, it became apparent that the participating groups were primarily interested in an analysis of the relation between volume and unit operating costs in individual houses. Any consideration of other factors that might affect the internal operating efficiency of individual houses was incidental to the main objective.

For this reason it was thought desirable to restrict the scope of the investigation although it was realized that numerous other factors in addition to volume handled have an influence on unit costs of operation as between houses and for the same house from year to year. Another consideration in restricting the scope of the study was that a more extensive study would have required additional personnel and a much longer period for gathering and analyzing relevant data.

Sources of Information.--The data on which this study is based were drawn from publications of the University of California and of State and Federal agencies; from publications of Sunkist Growers, Inc.;[4] and from the books and records of the O.K. Fruit Exchange and of the eight local cooperative packing associations. In addition, information and advice

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4/ This is the new name of the cooperative corporation previously known as the California Fruit Growers Exchange.

were sought from the managers and directors of the packing houses, from the Agricultural Commissioner and the Director of Extension of San Bernardino County, from the Fruit Growers' Supply Company, from a firm of public accountants which audited the books of several of the participating associations, and from sundry other sources.

External Economic Factors Affecting Packing House Operations

It is probable that over 80 per cent of all citrus fruit grown in California is sold cooperatively. Grower owned and controlled local associations operate packing houses to receive, grade, store, pack, and load citrus fruit for sale in domestic and foreign markets. These local associations usually also perform other services, such as pest control and supply of fertilizer, for members. The majority of the local cooperative associations are affiliated with district exchanges (e.g., the Ontario-Cucamonga Fruit Exchange) which arrange and handle sales of fruit on behalf of their affiliated locals. The district exchanges in turn are affiliated with Sunkist Growers Incorporated which, among other activities, coordinates the selling operations of the district exchanges and maintains sales outlets in all important markets. All of these agencies and especially the local associations (also referred to as packing houses) are thus vitally concerned with (a) trends in the acreage, production, and utilization of citrus fruit, and (b) trends in prices and cost factors.

Acreage: California and Arizona in Relation to the United States.--Although bearing acreage in oranges and tangerines in California and Arizona has expanded considerably since 1924-25, California has become relatively less important as a producer of these two types of fruit. In the five-year period, 1924-25 to 1928-29, about 57 per cent of the total bearing acreage of oranges was located in California and Arizona as compared with just under 43 per cent from 1944-45 to 1948-49 (Table 1). California and Arizona are relatively unimportant in the production of grapefruit, accounting for only 10 per cent of all U.S. bearing acreage from 1924-25 to 1928-29 and 13 per cent from 1944-45 to 1948-49. Practically all the bearing acreage in lemons is located in California.

Florida now surpasses California in regard to bearing acreage in oranges and tangerines. Both Florida and Texas have far greater acreages in grapefruit than does California.

Table 1

Bearing Acreage of Citrus Fruit--United States

Kind of fruit and period	Calif. & Arizona	Florida	Texas	Other states	U.S. total	Calif-Ariz. as % U.S. total
	1000 acres					
Oranges & Tangerines						
1924-25 to 1928-29	180.5	129.1	1.7	4.4	315.6	57.2
1929-30 to 1933-34	197.4	175.4	10.9	5.4	389.1	50.7
1934-35 to 1938-39	221.8	226.5	22.3	7.3	478.2	46.4
1939-40 to 1943-44	239.7	259.3	25.6	6.0	530.6	45.2
1944-45 to 1948-49	246.7	296.0	33.5	4.5	580.7	42.5
Lemons						
1924-25 to 1928-29	41.2				41.2	100.0
1929-30 to 1933-34	40.6				40.6	100.0
1934-35 to 1938-39	43.6				43.6	100.0
1939-40 to 1943-44	55.8				55.8	100.0
1944-45 to 1948-49	64.9				64.9	100.0
Grapefruit						
1924-25 to 1928-29	6.6	49.1	4.4		60.1	10.0
1929-30 to 1933-34	14.7	66.7	25.9		107.4	13.7
1934-35 to 1938-39	27.1	83.5	67.1		177.7	15.2
1939-40 to 1943-44	28.6	88.4	75.0		192.1	14.9
1944-45 to 1948-49	26.5	91.9	79.6		198.0	13.4

Source: Calif. Fruit Growers Exchange. Statistical Information on the Citrus Fruit Industry, 1951.

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Acreage in Citrus Fruit: California.--The trends of bearing acreage of citrus fruit are shown in Figure 1. Bearing acreage in valencia oranges and lemons expanded appreciably between 1924-25 and 1946-47 and in grapefruit to about 1936-37. On the other hand bearing acreage in navel oranges has shown a distinct downward trend since 1924-25. In the case of all four types of fruit there has been a pronounced decline in bearing acreage since 1948-49. The apparently large decline in 1949-50 for all four types of citrus fruit was in large measure the result of a "tree-count" made in 1948-49 and 1949-50 although, from information available, part was also due to an actual reduction in bearing acreage. As a result of the "tree-count" some acreage was transferred from the bearing to the nonbearing category. It is probable that the actual bearing acreage prior to 1948-49 was somewhat lower than was shown in published reports and in Figure 1. If correction could have been made for overstatement of bearing acreage in previous years, the decline in 1949-50 would in all probability have been much more moderate. It is significant, however, that further declines in bearing acreage took place during the next two years shown.

The data in the lower section of Figure 1 indicate that fewer new orchards are being planted to replace old ones. In most parts of California the average age of citrus fruit trees has been increasing. For example, in 1950 about 56 per cent of all lemon trees were 17 years and older, as compared with 44 per cent in 1940.[5/] A similar situation holds for oranges. It is reasonable to conclude, therefore, that bearing acreage in citrus fruit will continue to decline during the next few years.

Production and Utilization of Citrus Fruit.--There has been an irregular but definite decline in the total volume of citrus fruit produced in California since 1940-41 in the case of lemons and since 1944-45 in the case of the other types (Figure 2). This decline took place despite the fact that, for valencia oranges and lemons, bearing acreage continued to expand up to 1948-49. These data indicate that average yields per acre of citrus fruit in California have declined within recent years. Equally significant is the decline in fresh shipments, especially during the last few years. From 1944-45 to 1948-49, only 85 per cent of navel and miscellaneous oranges were shipped as fresh fruit, compared with about 90

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5/ Sidney Hoos and R. E. Seltzer. Lemons and Lemon By-Products. California Agric. Exp. Sta. Bul. 729, 1952 (p. 11).

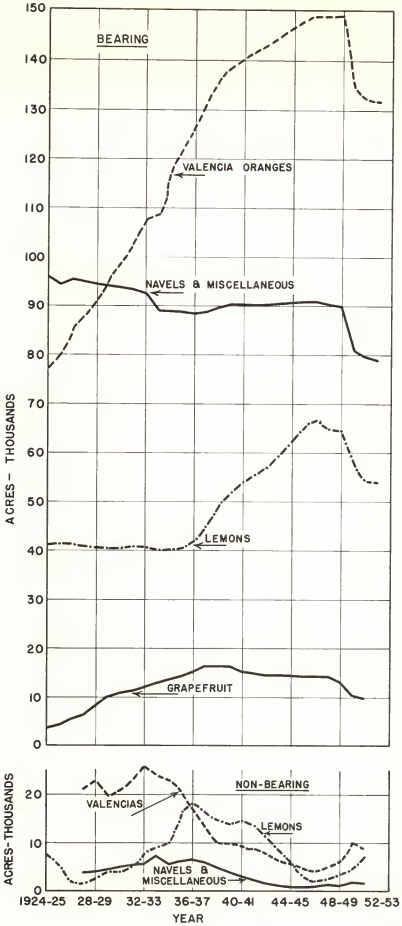

FIG. I - ACREAGE IN CITRUS FRUIT: CALIFORNIA 1921-25 TO 1951-52

SOURCE: APPENDIX TABLE I

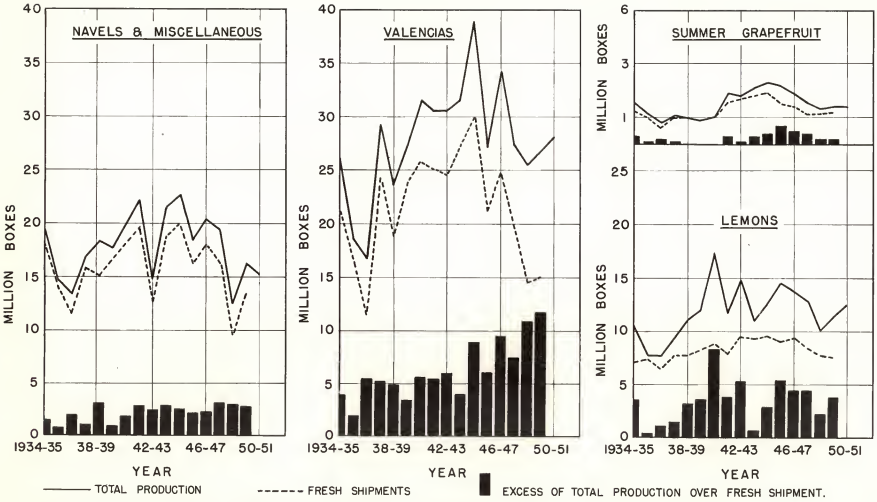

FIG. 2 - PRODUCTION & FRESH SHIPMENTS OF CITRUS FRUIT. CALIFORNIA & ARIZONA; FROM 1934-35 TO 1950-51

SOURCE: APPENDIX TABLE 2

per cent from 1934-35 to 1938-39. The corresponding figures for valencia oranges are 71 and 81 per cent, for lemons, 70 and 80 per cent, and for summer grapefruit, 77 and 87 per cent.

In effect, this decline both of production and of fresh shipments means that, in most areas of California, a much smaller percentage of aggregate packing house facilities is being utilized at present than was the case 8 to 10 years ago. With the prospect of a further decline in bearing acreage during the next few years, even less fruit will be available for packing.

Acreage in Citrus Fruit: San Bernardino County.--The data presented above indicate broad trends for the citrus industry of the state. The question arises as to whether similar conditions obtain in the area served by the O.K. Exchange. As will be shown later, seven of the eight packing houses participating in this study draw the bulk of their supplies of citrus fruit roughly from four districts in the western part of San Bernardino County. Unfortunately, detailed statistics on acreage and production are not generally available by districts. The authors were able to extract, from the working records of the Agricultural Commissioner of San Bernardino County, data on bearing acreage by types of citrus fruit in each of the four districts for the years 1946 to 1951 (Table 2). These data indicate that between 1946 and 1951 bearing acreage in navel and miscellaneous oranges and in grapefruit declined about 12 per cent, and in valencia oranges and lemons, about 8 per cent. Part of this decline was due to a recalculation of acreage for 1949-50 as a result of the tree-count referred to previously (p. 5). The four districts together had a total of 13,450 bearing acres in citrus fruit. Of these, 42 per cent was planted to navels, 34 per cent to lemons, 21 per cent to valencias, and 3 per cent to grapefruit.

Calculations made by the authors indicate that these four districts accounted for about 80 per cent of the county's bearing acreage in lemons, 25 per cent in both navel and valencia oranges, and 11 per cent in grapefruit.

Because of the comparative importance of these four districts in San Bernardino County, especially in regard to lemon acreage, it is reasonable to use county statistics for the purpose of establishing trends of acreage over a longer period of time. Total bearing acreage of all types of citrus fruit appears to have reached a peak in 1939

Table 2

Bearing Acreage in Citrus: Western San Bernardino County (Acres)

Kind of fruit and year	Alta Loma-Cucamonga district	Upland district	Ontario-Upland district	Ontario district	Total: four districts
Navel & misc. Oranges					
1946	1,746	1,325	1,940	1,341	6,352
47	1,746	1,305	1,939	1,341	6,331
48	1,732	1,277	1,919	1,232	6,160
49	1,609	1,325	1,994	1,104	6,032
1950	1,522	1,331	1,942	1,110	5,905
51	1,509	1,263	1,788	1,061	5,621
Valencias					
1946	902	521	892	767	3,082
47	902	512	893	768	3,075
48	905	504	897	751	3,057
49	903	507	845	666	2,921
1950	901	503	815	682	2,901
51	893	475	798	663	2,829
Lemons					
1946	2,109	1,267	1,611	70	5,057
47	2,109	1,272	1,616	70	5,067
48	2,094	1,264	1,606	70	5,034
49	1,986	1,269	1,469	62	4,786
1950	1,879	1,253	1,469	62	4,663
51	1,828	1,221	1,548	60	4,657
Grapefruit					
1946	207	57	79	45	388
47	207	57	79	45	388
48	211	57	79	45	392
49	209	54	68	38	369
1950	214	49	49	38	350
51	211	46	48	38	343

Source: Working records in the office of the Agricultural Commissioner, San Bernardino County.

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(Table 3 and Figure 3). That year was also the peak of bearing acreage in navel and miscellaneous oranges, while grapefruit reached a peak in 1944, valencia oranges in 1945, and lemons in 1947. Bearing acreage of navel oranges in 1951 was about 32 per cent lower than in 1939. The corresponding figure for valencia oranges was 14 per cent, for lemons about 9 per cent, and for grapefruit about 28 per cent.

The data on bearing and nonbearing acreages for San Bernardino County indicate that the over-all trends for each of the four types of fruit are in the same direction (although on a different scale) as state-wide trends.

Size of Groves in Area.--Information was obtained from a number of packing houses in the area served by the O.K. Exchange relative to the size of groves of members. Data from two combination houses, one orange house, and one lemon house are summarized, as percentages of total number of groves, in Table 4. There appear to be wide variations among houses relative to the numbers of groves in each size grouping. In order to obtain data more representative of the area as a whole, a weighted average was calculated separately for orange and lemon groves. Nearly 27 per cent of the orange groves and about 25 per cent of the lemon groves were of less than 2 acres. Nearly 67 per cent of the orange groves and 64 per cent of the lemon groves were less than 6 acres in size. For both oranges and lemons, only 15 per cent of all groves were 10 acres and larger; less than 1 per cent in excess of 30 acres.

With the prices and cultural costs of the last three or four years, it seems unlikely that large numbers of growers in this area could have subsisted entirely on the net income from their citrus enterprises. At best, the income from citrus production would serve to supplement income from other sources. It is problematical whether growers with small groves would continue in production if unfavorable economic conditions continue.

Yields per Acre.--Many persons familiar with the citrus industry of southern California consider that, under the price and cost conditions prevailing during the past few years, most growers would be unable to cover all cultural costs (including depreciation and interest on investment) unless yields of at least 300 field boxes of oranges and 350 field boxes of lemons per acre were obtained.

Data relative to the number of field boxes picked per member during the year 1950-51 were obtained from three houses handling oranges and two

Table 3

Bearing and Nonbearing Acreage of Citrus Fruit: San Bernardino County (Acres)

Year	Navels and miscellaneous	Valencias	Lemons	Grapefruit	All kinds
	Bearing acreage				
1936	25,449	9,802	4,862	2,903	43,016
37	31,880	10,811	4,751	2,833	50,276
38	32,263	11,177	4,945	3,124	51,519
39	32,323	11,339	5,227	3,571	52,450
1940	28,819	11,529	5,295	3,291	48,934
41	27,580	12,344	5,585	3,802	49,311
42	27,781	12,502	5,757	3,972	50,013
43	27,801	12,866	6,067	3,966	50,700
44	26,925	12,859	6,213	4,323	50,300
45	26,811	12,906	6,310	4,319	50,346
46	26,787	12,608	6,333	4,254	49,982
47	26,758	12,624	6,345	4,256	49,983
48	26,447	12,538	6,245	4,269	49,499
49	23,314	11,665	5,732	3,591	44,302
1950	22,450	11,278	5,636	3,359	42,723
51	21,929	11,209	5,763	3,115	42,016
	Nonbearing acreage				
1942	180	505	583	326	1,594
43	117	317	271	119	824
44	76	193	150	59	478
45	58	147	72	55	332
46	48	193	86	62	389
47	55	258	104	59	476
48	35	269	131	55	490
49	112	222	173	35	542
1950	93	159	240	20	512
51	89	110	271	15	485

Source: Records in the office of the Agricultural Commissioner, San Bernardino County.

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[illegible] and Mortgage Loans of Trust Companies [illegible]

Year	Loans on stocks and bonds	Mortgage loans	Loans on [illegible]	Other loans	Total
	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

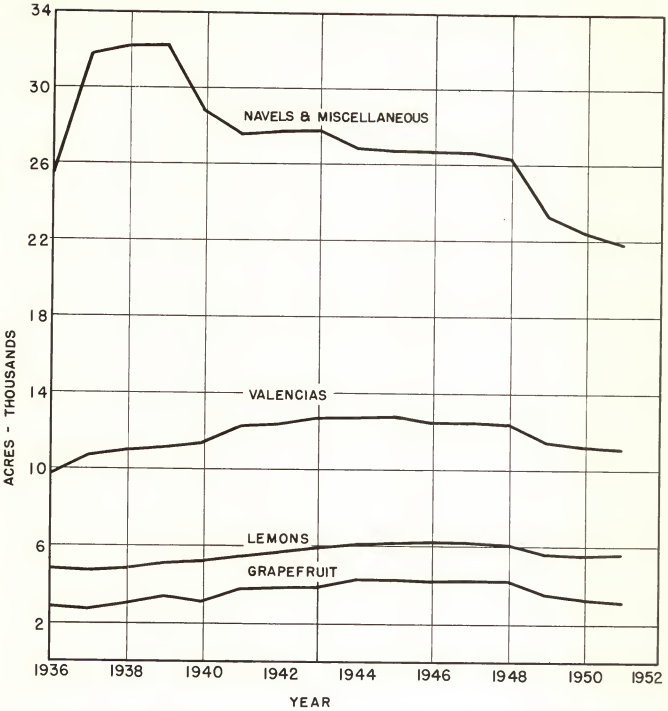

FIG. 3-BEARING ACREAGE OF CITRUS FRUIT IN SAN BERNARDINO COUNTY.
SOURCE: TABLE 2

Table 4

Per Cent of Groves in Different Size Ranges

Range in acres	Oranges				Lemons			
	House A	House B	House C	Weighted average 1/	House A	House D	House C	Weighted average 1/
Less than 2	48.0	18.4	38.8	26.6	45.3	18.7	29.2	24.5
2 - 3.9	20.0	17.7	17.9	17.9	22.1	18.7	18.0	18.8
4 - 5.9	4.0	27.0	16.4	22.3	17.4	23.0	18.0	21.0
6 - 7.9	0.0	8.5	6.0	7.2	0.0	14.5	4.5	10.1
8 - 9.9	4.0	12.1	9.0	10.6	2.4	14.5	4.5	10.3
10 - 14.9	16.0	9.2	1.5	7.2	11.6	6.3	13.5	9.0
15 - 19.9	0.0	5.0	0.0	3.1	0.0	4.3	4.5	4.0
20 - 29.9	4.0	1.4	8.9	3.9	1.2	0.0	6.7	2.2
Over 30	4.0	0.7	1.5	1.2	0.0	0.0	1.1	.1
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Weighted by volume of fruit received from growers in each house.

Source: Records of two combination houses, one orange house and one lemon house.

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houses handling lemons, including the large orange and the large lemon houses. Some houses compiled these data for all members; others, from a representative sample (30-50 per cent of all members, chosen at random). Data for the various houses were combined, and appear in Table 5 on the basis of groves because some members operated several groves of different sizes and of widely varying yields. It is significant that for navel oranges about 37.1 per cent of the groves and 31.9 per cent of the acreage had yields of less than 300 field boxes per acre, although these accounted for only 20 per cent of the fruit received by the houses. About 57.3 per cent of the lemon groves, comprising 48.9 per cent of the acreage, had yields of less than 350 field boxes per acre. These groves accounted for about 31 per cent of all fruit received by houses.

Although a small proportion of the groves with low production per acre (Table 5) were young groves just coming into production, the bulk appears to have been well-established, older groves. In some instances, they represent groves which, because of high cultural costs and low yields, were receiving little cultural care.

The houses included in Table 5 probably handle from 40 to 50 per cent of all fruit produced in the area studied. The conditions described above can, therefore, be regarded as reasonably representative of the area as a whole. Even if these data overemphasize the seriousness of the situation somewhat, it is still safe to conclude that, if present conditions continue, a not insignificant proportion of acreage now in groves may be forced out of commercial production.

Reasons for Declines in Acreage and Production.--There appear to be four related reasons for the recent declines in acreage, production, and fresh shipments of citrus fruit: (a) expansion of urban areas; (b) increases in cultural and other costs; (c) cultural problems; and (d) competition from frozen and canned fruit juices.

In some parts of California, scattered acreages of citrus fruit (probably quite substantial in the aggregate) have been pulled out since the end of the war to provide for urban housing, industrial development, and for new and wider roads. This encroachment of urban upon agricultural areas appears to be still under way. Information available from managers of packing houses in the western part of San Bernardino County indicates that there has been considerable loss of citrus acreage to urban subdivision in this area. It is estimated, furthermore, that a new

Table 5

Field Boxes of Fruit per Acre--by Size Groups--1951

Field boxes per acre by size groups	Navel oranges (data from 3 houses)						Lemons (data from 2 houses)					
	number			percent of total			number			percent of total		
	groves	acres	field boxes	groves	acres	field boxes	groves	acres	field boxes	groves	acres	field boxes
Less than 100	13	59.90	3,544	5.0	4.1	0.6	12	64.00	3,483	9.1	7.8	1.2
100-149	13	52.25	6,772	5.0	3.6	1.2	7	36.25	4,025	5.4	4.4	1.4
150-199	16	44.25	8,206	6.1	3.0	1.5	9	21.45	3,684	6.9	2.6	1.3
200-249	22	90.75	19,940	8.4	6.2	3.5	13	65.25	14,615	9.9	8.0	5.1
250-299	33	219.50	58,115	12.6	15.0	10.3	19	117.00	31,749	14.5	14.2	11.0
300-349	27	134.00	43,327	10.3	9.2	7.7	15	97.30	31,548	11.5	11.9	10.9
350-399	34	223.27	83,257	13.0	15.3	14.8	18	160.35	59,763	13.7	19.5	20.7
400-499	56	325.30	162,583	21.3	22.3	28.9	20	141.64	63,515	15.3	17.3	22.0
500-599	32	203.00	107,895	12.2	13.9	19.1	10	85.55	46,334	7.6	10.4	16.0
over-600	16	107.75	69,894	6.1	7.4	12.4	8	32.00	30,129	6.1	3.9	10.4
Total	262	1459.95	563,533	100.0	100.0	100.0	131	820.88	288,845	100.0	100.0	100.0

Source of data: Records of packing houses included in study.

Table 4

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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four-lane highway, to be constructed running east and west and passing just south of Upland, will eliminate well over 100 acres of citrus acreage. Informed opinion indicates that much of this expansion has been at the expense of relatively good citrus bearing acreage.

Trends in the profitability of an industry can often be shown by comparisons of relative changes in prices and of the more important production and marketing costs. For a number of years the California Citrus League has computed estimates of average f.o.b. packing-house prices per packed box, and packing, picking, hauling, and cultural costs per packed box. Although the accuracy and representativeness of these data for any one area and for any one year may be questioned, the data do afford a reasonably reliable picture of trends in prices and costs and in the relative importance of the different cost groups.

The relative importance of the different cost groups in relation to f.o.b. prices per packed box is summarized by five-year periods in Table 6. These data indicate that during the early war years all three cost groups accounted for a much lower proportion of average f.o.b. prices per packed box than during the prewar years--an indication of the increased profitability of the citrus production during the early war years. During the last five-year period (roughly the postwar period), these three cost groups absorbed (except in the case of navel oranges) a larger proportion of the f.o.b. prices per packed box than during the prewar period--indicating a marked decline in the profitability of the citrus industry.

The relative importance of the three cost groups is indicated by the fact that, during the postwar period, cultural costs for both navel and valencia oranges accounted for about 30 per cent of the f.o.b. prices, packing costs for 22 per cent, and picking and hauling costs for 9 per cent. The comparable figures for lemons were 25, 25, and 12 per cent, and for grapefruit 30, 30, and 10 per cent.

The relative changes (1934-35 to 1938-39 = 100) in cultural costs, picking and hauling costs, packing costs, and f.o.b. prices (all per packed-box equivalent) are shown in Figure 4. It will be noticed that during the war period f.o.b. prices for packed fruit increased more rapidly than did the various cost factors. During the postwar period, however, all three types of costs tended to rise more rapidly than did f.o.b. prices. In 1950-51 (except for grapefruit) the relative increases in the three types of costs since the base period equalled or exceeded the relative

Table 6

Picking, Packing and Hauling, and Cultural Costs per Packed Box as a Per Cent of F.O.B. Prices 1/

Kind of fruit & period	Packing costs	Picking & hauling costs	Cultural costs	All three cost groups
Navel Oranges				
1934-35 to 1938-39	26.4	8.2	39.6	74.2
1939-40 to 1943-44	21.5	8.4	25.1	55.0
1944-45 to 1948-49	22.0	9.0	29.6	60.6
Valencia Oranges				
1934-35 to 1938-39	20.7	6.5	33.6	60.8
1939-40 to 1943-44	17.2	6.7	20.1	44.0
1944-45 to 1948-49	22.2	9.1	30.3	61.6
Lemons				
1934-35 to 1938-39	22.6	10.5	29.4	62.5
1939-40 to 1943-44	25.5	11.6	20.6	57.7
1944-45 to 1948-49	26.2	12.5	25.5	64.2
Grapefruit				
1934-35 to 1938-39	31.5 2/	4.9 2/	23.6 2/	60.0 2/
1939-40 to 1943-44	26.5	8.0	25.5	60.0
1944-45 to 1948-49	30.3	9.6	30.0	69.9

1/ These data represent estimates based upon the costs per packed box equivalent of all fruit handled.

2/ Years 1937-38 and 1938-39 only.

Source: Computed by the authors from data appearing in "Statistical Information on the Citrus Fruit Industry, 1951." California Fruit Growers Exchange.

TABLE A

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increase in f.o.b. prices. These data indicate that since the end of the war there has been a marked decline in the relative profitability of the citrus industry. From such data as are available it would appear that the situation in 1951-52 was even less favorable because wages and prices of other cost factors rose appreciably without a corresponding increase in the f.o.b. prices of fresh fruit.

Of special significance, from the standpoint of this study, is the fact that the average cost of packing a box of oranges had increased from 46 cents, in 1939-40, to 95 cents in 1949-50. The corresponding figures for lemons are 80 cents and $1.55, and for grapefruit, 44 and 91 cents.

These data on f.o.b. prices and costs, however, do not tell the full story. Statewide averages tend to obscure variations in prices and costs among houses. Data secured in the Ontario-Cucamonga area indicate that some of the houses with the lowest unit packing costs per box obtained better f.o.b. prices per packed box than did houses with high unit packing costs. Where low prices in a house are associated with high unit costs of packing, such costs would represent a greater percentage of f.o.b. prices than the average for the state as a whole.[6/]

Another indication of the drastic decline in the profitability of citrus production is afforded by annual estimates, made by the Citrus League, of the average net income of growers of oranges and lemons. During the years 1942-43 to 1944-45 the net income per acre for navels and miscellaneous oranges averaged nearly $280; for 1947-48 to 1949-50, only about $20. For valencias the comparable figures were about $400 and -$33, and for lemons, about $190 and about $80.[7/]

Deterioration in cultural conditions in many parts of California has also been a factor contributing to decreased acreage in citrus fruit. In many parts of the state considerable numbers of old groves have passed the peak bearing stage. New trees planted in old groves do not appear to give the same high yields as the older groves did. In many parts of the state, moreover, there have been serious water shortages. Furthermore,

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6/ The interrelation between f.o.b. prices and unit costs of packing will be treated more fully in the section dealing with analysis of costs of packing fruit.

7/ Calculations made by authors from tables appearing in "Statistical Information on the Citrus Fruit Industry" published by the Sunkist Growers Inc. 1951.

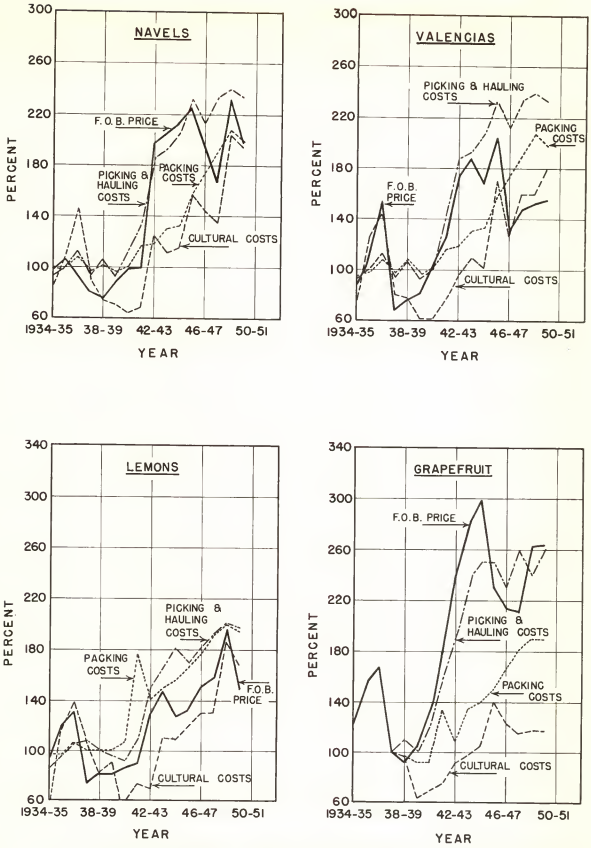

FIG. 4 - PERCENTAGE CHANGES IN PRICES & COSTS PER PACKED BOX EQUIVALENT OF CITRUS FRUITS IN CALIFORNIA. (1934-35 TO 1938-39 = 100)

SOURCES: APPENDIX TABLES 3, 4, 5 & 6.

for reasons not yet fully explained, there appears to be a tendency toward decline in size of fruit.

Finally, during recent years fresh citrus fruit has encountered increasingly severe competition from canned and frozen juices. A substantial proportion of these juices (from oranges and grapefruit) is produced in Florida and Texas where cultural and other costs appear to be considerably lower than in California. Canned lemon juices are produced mainly in California. Although the competitive interrelationships between canned citrus juices and fresh fruit are not yet very well defined, it is reasonable to conclude that the existence of these alternative uses for citrus fruit has served and will probably continue to serve as a brake to any marked advance in prices of fresh fruit.

Packing House Operations in the Ontario-Cucamonga Area

Development of Packing Houses.--Most of the packing houses in this area (as is true also in many other parts of California) came into existence 30 or more years ago when the citrus industry was expanding rapidly and when the bulk of the fruit was transported from groves to packing in animal-drawn vehicles, over poor roads. In the early days most of the operations within houses were manual. Under the conditions prevailing prior to World War I, it is probable that economies of scale were limited and that unit packing costs were not significantly lower in large than in small packing houses. Some of the houses were established to handle a single main type of fruit (e.g., oranges or lemons), but also often handled small quantities of minor types, such as grapefruit or tangerines. Others operated as combination houses handling both main and minor varieties.

Over the course of years, and with the expansion of production, some of the houses increased greatly in size; others only moderately; whereas others remained small. Within more recent years, moreover, packing house operations in both large and small plants have become increasingly mechanized. Automatic dumpers, washing machines, sizing and counting equipment, conveyor belts, box-making and lidding machines have been installed. The use of such equipment has necessitated considerable capital investment and, from such information as is available, has

apparently made possible some definite economies of scale.[8/] Moreover, with the prospect of further advances in wage levels, there will be more incentive for packing houses to substitute mechanical for manual operations.

During the past decade or so, considerable research and experimental work has been under way--aimed at devising more economical ways for handling citrus from groves to, and within, packing houses. Some of this work has progressed from the experimental to the practical stage. Many packing houses, especially those handling lemons, are already trying out these new techniques. If they prove satisfactory, they will probably be widely adopted, and much of the equipment now used will become obsolete. This will result in considerable investment of capital in new and more modern equipment. Houses unable to finance such changes will find that their competitive position will become less favorable.

Physical Features of Area.--The area served by the Ontario-Cucamonga Fruit Exchange is about 30 miles long and from 3 to 7 miles wide. It is located on both sides of U.S. Highway 66 (Foothill Boulevard) connecting Los Angeles and San Bernardino (Figure 5). The area lies just south of the San Gabriel Mountains, and extends from San Dimas (Los Angeles County) in the west to Rialto (San Bernardino County) in the east. Most of the area in which citrus fruit is grown is from 900 to 1,250 feet above sea level. The area is traversed by several rocky washes, on which no agricultural production is feasible, running roughly south from the mountains. In addition there is a wide strip of sandy soil (mostly east of Cucamonga) on which there are extensive vineyards, but no citrus. The whole area is cut by numerous roads and railroads, the latter running mainly east and west. Numerous medium and small towns are scattered throughout the area. The Kaiser Steel Company's Fontana plant is located in the eastern section. The citrus industry is old and well established in the area, with navel oranges and lemons the more important types produced.

Number of Packing Houses.--In 1952 there were about 18 packing houses in the area covered by this study (Table 7). Six were located in the central

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8/ A recent study made by the Farm Credit Administration indicates that, all other things being the same, there is an inverse relation between unit costs per packed box and volume of fruit packed. (See George L. Capel, Jay Coryell, and J. K. Samuels, Analysis of Packing House Costs for 31 Southern California Citrus Associations, 1946-47 and 1947-48 Seasons. U.S. Dept. of Agric., Farm Credit Admin. Special Report 214, August 1950. Processed. 21 p.

1- SAN DIMAS LEMON ASSN.
2- INDEPENDENT
3- O.K. COMMERCIAL
4- INDEPENDENT
5- MUTUAL ORANGE DISTRIBUTORS
6- UPLAND HEIGHTS ORANGE ASSN.
7- AMERICAN FRUIT GROWERS
8- MOUNTAIN VIEW FRUIT ASSN.
9- UPLAND CITRUS ASSN.
10- UPLAND LEMON GROWERS ASSN.
11- OLD BALDY CITRUS ASSN.
12- AMERICAN FRUIT GROWERS
13- ALTA LOMA HEIGHTS CITRUS ASSN.
14- INDEPENDENT
15- ETIWANDA CITRUS FRUIT ASSN.
16- RIALTO HEIGHTS CITRUS ASSN.
17- SUNKIST HOUSES SELLING THROUGH
18 DIFFERENT EXCHANGES.

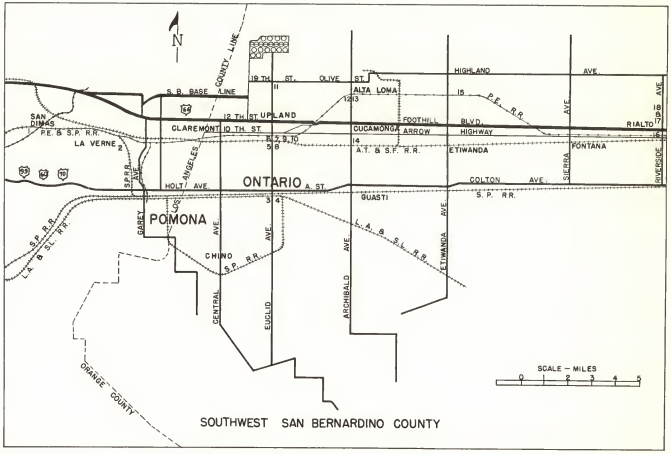

FIG. 5- AREA SERVED BY THE ONTARIO-CUCAMONGA FRUIT EXCHANGE.

Table 7

Citrus Packing Houses in Area

Town	Approx. distance from central Upland	Affil. with O.K. Exch.		Coop. houses affil. with other coop. or exch.	Inde-pendent comm.	Total
		Coop. house	Comm. house			
San Dimas	11 west	1				1
LaVerne	7 west			1		1
Ontario	2 south		1		1	2
Central Upland	--	4		1	1	6
Upland city limits	2 north	1				1
Cucamonga	4 east				1	1
Alta Loma	5 east	1			1	2
Etiwanda	11 east	1				1
Rialto	17 east		1	2		3
		8	2	4	4	18

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part of Upland, and six others within a radius of 5 miles from Upland. Two houses were about 12 miles east of Upland, and four, from 10 to 20 miles east of that city. Several additional packing houses are located just beyond the boundaries of the area. At least four of the houses located on the outer edges of the area drew part of their supplies of fruit from adjacent areas.

Only 10 of the 18 houses were affiliated with the O.K. Exchange, two of them being commercial (privately, not cooperatively owned). Four of the remaining (one of which was later closed down) were independent commercial houses, and four were cooperatively owned but affiliated with other exchanges. This study embraced only the eight cooperatively owned houses (or associations) operating through the O.K. Exchange.

Characteristics of Houses.--Because identification of these houses or associations from volume and cost data used would present no difficulty to persons familiar with the area, it was decided that no useful purpose would be served by referring to individual associations under a code name or number. Throughout the balance of this report, therefore, individual associations will be referred to by their full or abbreviated names.9/

All eight associations have been in existence since before World War I. Most of the packing houses, however, have been modernized in several ways, such as by installation of refrigeration or precooling facilities, receiving platforms, and cull bins. All have mechanized operations to a considerable extent. Many of the associations have constructed out-buildings for garages, material storage, and office space. Two have erected new or additional buildings for packing operations during the past 10 to 15 years. Seven of the houses own the land (purchased when first organized) upon which buildings were erected. Only one, the Etiwanda Citrus Fruit Association, operates on rented land--under a long-term lease from the Pacific Electric Company.

9/ The following are the full and abbreviated names of participating associations and type of house:

	Full Name	Abbreviated Name	Type of House
1.	Alta Loma Heights Citrus Association	Alta Loma	Combination
2.	Etiwanda Citrus Fruit Association	Etiwanda	Combination
3.	Mountain View Fruit Association	Mountain View	Combination
4.	Old Baldy Citrus Association	Old Baldy	Combination
5.	San Dimas Lemon Association	San Dimas	Lemon
6.	Upland Citrus Association	Upland Citrus	Orange
7.	Upland Heights Orange Association	Upland Heights	Orange
8.	Upland Lemon Growers Association	Upland Lemon	Lemon

In addition to packing and storage operations, all eight associations provide the following services for members: picking of fruit; supplying of materials required in production; and pest control. Several of them operate labor camps or participate in a regional camp run on a pooled basis. As this study is concerned primarily with operations within packing houses, cost and other data relative to field activities and sale of production supplies have been excluded from analysis.

Information regarding location, fruit handled, capacity, and membership, for the eight houses, is summarized in Table 8. There are two lemon, two orange (and grapefruit), and four combination houses. Two houses (Upland Lemon Growers Association and Upland Citrus Association) are large--capable of handling 14,000-15,000 field boxes of fruit a day. The other six houses can be classified as medium or small. The capacity ratings for handling of fruit are based upon an eight-hour day. All the houses could handle additional fruit, should the occasion arise, by working equipment in excess of eight hours a day for a limited period. The eight houses (or associations) combined had some 1,250 active member-shippers in 1951, who in turn operated about 3,360 acres of oranges (including some grapefruit) and 5,470 acres of lemons.

All the houses are approached by good paved roads. The house at San Dimas and the four houses in the central part of Upland have access to two railroads, the Santa Fe and the Pacific Electric. This gives these five houses some advantage in securing cars during periods of shortage of car facilities. The other three houses are served by only a single railroad--the Pacific Electric.

Seven of the associations have been affiliated with the O.K. Exchange for a long period. The eighth, the San Dimas Lemon Association, became a member of the O.K. Exchange only in 1949-50. Prior to that year it had shipped its fruit through another district exchange. All eight associations purchase packing house supplies and production materials for members through the California Fruit Growers Supply Company. Fruit not suitable for packing, or surplus to marketing requirements, is shipped to the Exchange Lemon Products Company or the Exchange Orange Products Company for processing. All three of these companies are cooperatively owned and controlled.

Six of the eight houses situated in the core of the area had more or less overlapping areas of supply. Two of these houses (Mountain View and Old Baldy) also drew some citrus from adjacent territory. Etiwanda on the

In addition to packing and [illegible] operations, [illegible] houses provide the following services for members: picking of fruit, [illegible] which is required in orchards; and pest control. Several of them operate large camps or participate in a regional camp run by a [illegible]. As this study is concerned primarily with operations within packing houses, cost and other data relating to [illegible] are kept in [illegible] have been excluded from analysis.

Information regarding locations, [illegible] capacity, and [illegible] for the eight houses, is summarized in Table 7. There are [illegible] houses (non profit), and four commercial houses. The [illegible] (including [illegible] and [illegible]) [illegible] handling 11,000–15,000 field boxes of fruit a day. The other [illegible] houses [illegible] machine [illegible]. The capacity [illegible] of fruit [illegible] houses [illegible] commercial fruit, [illegible] a single [illegible] 8 hours a day for a [illegible]. The eight houses [illegible] 1,750 acres [illegible] in 1951 [illegible] 1,350 acres of oranges [illegible] and [illegible] lemons.

All the houses are [illegible] by [illegible]. The [illegible] and the four houses in the [illegible] have [illegible], the Santa Fe and the Pacific Electric. [illegible] some advantage in [illegible] communities. The other three houses are served by only a single railroad, the Pacific Electric.

Seven of the [illegible] have been affiliated with the [illegible] for a long period. The eighth, [illegible] members of the C.F. Exchange until in 1950-51 [illegible] the fruit through [illegible] exchanges. All [illegible] purchase packing house supplies and [illegible] from the California Fruit Growers Supply Company. [illegible] in relation to marketing [illegible] of the [illegible] or the [illegible] those of these companies [illegible].

Six of the eight houses [illegible] with [illegible] overlapping areas of supply. The [illegible] houses [illegible] also draw some fruit from adjacent [illegible].

Table 8

Characteristics of Associations in Study

Name and location of Association	Distance & direction from central Upland	Fruit handled 1/	No. of complete handling units	Receiving, washing, & handling capacity		Storage capacity, lemons	Number of active members 1951	Acreage operated by members
				oranges	lemons			
				field boxes per day		cars		
San Dimas Lemon Association	11 miles west	lemons	1	--	3,600	180 3/ (220)	269	1,130
Upland Heights Orange Association	--	oranges	1	3,000	--	--	65	670
Mountain View Fruit Association	--	oranges lemons	1 orange 1 lemon	1,600	1,200	200	90	(168 oranges (283 lemons
Upland Citrus Association	--	oranges	2	15,000	--	--	234	1,300
Upland Lemon Growers Association	--	lemons	2(3)2/	--	14,000	620	290	2,610
Old Baldy Citrus Association	2 miles north	oranges lemons	1 orange 1 lemon	2,000	2,000	150	127	(410 oranges (590 lemons
Alta Loma Heights Citrus Association	5 miles west	oranges lemons	1 orange 1 lemon	3,200	3,200	130	89	(410 oranges (500 lemons
Etiwanda Citrus Fruit Association	11 miles west	oranges lemons	1 orange 1 lemon	2,500	3,000	70	81	(400 oranges (360 lemons

1/ Predominantly oranges, though all orange houses also handle some grapefruit.

2/ This house has three complete receiving, grading, and washing units. Use of the third unit (in emergency or regularly) would necessitate some rearrangement of storage space.

3/ This house has some inadequately insulated storage space which could accommodate another 40 cars for a limited period.

[illegible]

[illegible]

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east had a more or less district supply area, but there was some overlapping with Alta Loma. The San Dimas house did not overlap with any of the other seven houses in source of supply.

According to information obtained from managers of the different associations, not all parts of the area have experienced a decrease in acreage in recent years. The manager of the San Dimas Association is of the opinion that lemon acreage in his supply territory has expanded somewhat during the last few years as a result of budding lemons to orange stock. He believes, however, that with rising cultural costs some low-yielding acreage will be removed in the years ahead. Little or no acreage has been removed north of highway 66 because of urban subdivision. There has, however, been considerable loss of acreage south of the highway.

In the Etiwanda area, urban subdivision has not presented any particular problem. The Etiwanda supply area, however, has experienced unfavorable cultural conditions for several years past. At one time it was regarded as one of the best citrus growing areas of the state, in spite of the fact that it has always been subject to strong winds blowing up the canyon. Until about 15 years ago, cypress trees constituted effective windbreaks, but these were decimated by disease. They have been replaced to some extent by eucalyptus trees which have not proved nearly so effective as windbreaks. For several years past, strong winds have resulted in extensive defoliation of the citrus trees, resulting in greatly reduced yields and fruit generally poor in quality. Low rainfall over several years, and the age of groves, have probably also been contributing factors. Many groves in this area have been abandoned, and some receive only cursory cultural care. Further eliminations from commercial production are in prospect.

Volume of Fruit Handled.--All eight packing houses have experienced a considerable decline in the volume of fruit handled since the early 1940's. This is true even if the exceptionally high output of oranges in 1941-42 and the exceptionally low output of all types of fruit in 1948-49 (the frost year) are eliminated from consideration.

The six houses handling lemons received from members a combined average of 2,065,000 field boxes of fruit during the five-year period 1941-42 to 1945-46 as compared with only 1,625,000 field boxes during the period 1946-47 to 1950-51 (Table 9). The corresponding figures for

Table 9

Volume of Fruit Handled by Associations

Year	Oranges (Grapefruit) 1,000 field boxes						Lemons 1,000 field boxes					
	Alta Loma	Eti-wanda	Mt. View	Old Baldy	Upland Citrus	Upland Heights	Alta Loma	Eti-wanda	Mt. View	Old Baldy	San Dimas	Upland Lemon
1941-42	219.6	124.0	178.6	290.4	961.1	366.3	164.0	151.6	120.0	221.4	305.4	829.4
1942-43	92.4	81.3	68.7	163.7	661.7	202.4	194.1	104.5	148.7	280.7	387.3	1,159.2
1943-44	185.9	99.6	51.1	244.4	856.8	292.9	191.8	154.6	136.9	223.5	299.6	1,010.9
1944-45	139.0	84.5	50.9	192.5	816.1	281.2	147.6	99.9	165.1	212.0	389.3	997.3
1945-46	146.4	85.8	34.0	183.5	627.3	232.5	195.5	128.9	174.6	237.8	353.5	1,143.6
1946-47	114.2	60.4	31.9	180.4	597.4	244.4	159.3	75.7	106.0	224.9	379.6	987.3
1947-48	123.3	76.6	32.3	181.3	581.8	223.9	118.3	72.2	95.7	203.1	311.5	944.9
1948-49	43.9	45.4	20.1	83.7	479.0	85.6	74.2	111.5	66.7	112.8	204.4	628.2
1949-50	106.3	81.9	32.1	172.9	700.9	291.8	84.9	49.2	52.8	113.4	260.4	788.8
1950-51	98.5	48.5	33.5	113.5	567.5	247.6	141.3	76.3	79.9	199.7	325.4	1,078.6
Average: 1941-42 to 1945-46	156.7	95.0	76.7	214.9	784.6	275.1	178.6	127.9	149.1	235.1	347.0	1,028.1
Average: 1946-47 to 1950-51	97.2	62.6	30.0	146.4	585.3	218.5	115.6	77.0	80.2	170.8	296.3	885.6

Source: Records of eight packing houses.

Table 2

Income of Irish Hospital & Convalescent

Year	Income (Revenue)																	
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oranges were 1,603,000, and 1,140,000 field boxes. This represents a combined decrease during the two periods of 22 per cent for lemons and 29 per cent for oranges. The decline in volume of fruit received was much more severe for some houses than for others. For example, two houses (San Dimas and Upland Lemon) experienced a decline in volume of less than 15 per cent, whereas three other houses handling lemons experienced a decrease of over 40 per cent. For oranges, Upland Citrus and Upland Heights experienced a decrease in volume of 25 per cent or less, whereas one house experienced a decline of 60 per cent.

As smaller percentages of fruit received were actually packed during the last five years, the decline in volume packed would be relatively greater than the figures on receipts. The conclusion is inescapable that all houses are utilizing a much smaller proportion of their facilities (assuming no contraction of such facilities) than they did 10 years ago. With further declines in acreage in prospect during the next few years, an even less efficient use of facilities is likely during the years immediately ahead.

Utilization of Facilities.--The information presented above indicated the desirability of determining more fully present utilization of capacity in individual houses. Such information should serve as a basis for determining to what extent the area is over or under supplied with packing house facilities. Furthermore, there is often a direct inverse relation between the utilization of capacity and unit costs of operation. For example, a medium-sized house operating at full capacity may have lower unit packing costs than a larger house operating well below full capacity.

A completely accurate determination of capacity presents many difficult economic and engineering problems, and is time consuming and costly. Because extreme accuracy was not considered necessary for the purposes of this report, a rough approximation to over-all "flow capacity" in each house was obtained by requesting each manager to supply the best estimate he could of the more important types of equipment used and the number of field boxes of fruit that could be received and processed in a normal eight-hour day. Similarly, managers of houses handling lemons were asked to estimate the approximate peak storage capacity of lemons in terms of carlots.

Even where capacity rating for individual houses can be established, considerable caution is necessary in determining percentage utilization of

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such capacity. The flow of fruit to citrus packing houses is highly seasonal. For example, although some navel oranges may be picked and packed as early as December, the bulk reaches maturity during March and April, the latter usually being the month of peak shipments. The beginning of the valencia season is usually May or June, but July and August are the months of peak shipments. Lemons may be picked the year round, but peak picks usually occur in April, May, or June, with some variation from year to year because of weather conditions. In the O.K. area, the volume of navel oranges handled is usually several times greater than that of valencia oranges. Orange packing house facilities, therefore, should be assessed in terms of the larger navel crop.

Another difficulty arises from the fact that packing houses have some latitude as to the day or week in which fruit may be picked. While most deciduous fruit may have to be picked within a two- or three-day period, delay of a week or two in the picking of citrus fruit may not result in any marked deterioration of shipping or storage quality. Moreover, it is possible to handle larger than normal volumes by working additional shifts or on Saturdays.

There is also some flexibility in the volumes of lemons that may be put into storage. Many houses have followed the policy of storing a large proportion of the lemons received, partly to obtain a higher prorate and partly in the hope that the markets might absorb a larger volume of fresh fruit than could normally be expected. The policy of the Lemon Administrative Committee, of establishing prorates on "advance counts" as well as on the actual quantity of fruit in storage, has reduced to some extent the quantity of lemons placed in storage. Moreover, it is normal to divert a larger proportion of lemons to by-products at the washer in years of high production than in years of medium or low production.

For the purpose of this study a rough estimate of capacity utilization in individual houses was made by comparing the volume of fruits handled in plants in the month of highest receipts during the past two years with the capacity rating given by plant managers. Monthly capacity was determined by multiplying the daily capacity ratings by 22 (working days). For navels, the month of highest receipts of fruit occurred in 1949-50; for lemons, in 1950-51 (Table 10).

In four of the houses handling oranges, less than 50 per cent of the normal capacity was utilized in the month of peak receipts in 1949-50--a

full capacity. The flow of fruit to citrus packing houses is highly seasonal. For example, although some navel oranges may be picked and packed as early as December, the heaviest movement usually occurs during March and April, the latter usually being the month of peak shipments. The beginning of the valencia season is usually not until June, but July and August are the months of peak shipments. Lemons may be picked the year round, but peak picks usually occur in April, May, or June, with some variation from year to year because of weather conditions. In the study area, the volume of navel oranges handled is usually several times greater than that of valencia oranges. Orange packing house facilities, therefore, should be designed in terms of the larger navel crop.

Another difficulty arises from the fact that fruit packing houses have some latitude as to the time or rate in which fruit may be picked. While most deciduous fruit may have to be picked within a more or less limited period, delay of a week or two in the picking of citrus fruit may not result in any marked deterioration of shipping or storage quality. Moreover, it is possible to handle larger than normal volumes by working additional shifts or on Saturdays.

There is also some flexibility in the volumes of lemons that may be put into storage. Some houses have followed the policy of storing a large proportion of the lemons received, partly to obtain a higher return and partly in the hope that the market might absorb a larger volume of fresh fruit than could ordinarily be expected. The policy of the Lemon Administrative Committee, of establishing proration of shipments according to the actual quantity of fruit on the trees, has tended to encourage the quantity of lemons placed in storage. Moreover, it is normal to store a larger proportion of lemons in the summer in years of high production than in years of average or low production.

For the purposes of this study a rough estimate of capacity utilization in individual houses was made by comparing the volume of fruit packed and stored in the month of highest receipts during the past two seasons with the capacity ratings given by their managers. Monthly capacity was determined by multiplying the daily capacity by the number of working days. The months of highest receipts of fruit occurred in 1950-51 for lemons, in 1950-51 (Table 12).

In four of the houses handling oranges, more than 90 per cent of the normal capacity was utilized in the month of peak receipts in 1950-51-

Table 10

Per Cent of Handling Capacity Utilized[1/]

Name of Association	Handling Capacity: Field boxes (8-hr.day)	Handling Capacity: Field boxes (22-day mo.)	Peak month 1949-50 (oranges) 1950-51 (lemons)	Volume[2/] handled in peak month (field boxes)	Peak volume handled as per cent of capacity
		Navel Oranges			
Alta Loma	3,200	70,400	April	20,000	28.4
Etiwanda	2,500	55,000	March	18,300	33.3
Mountain View	1,600	35,200	March	10,200	29.0
Old Baldy	2,000	44,000	May	--	--
Upland Citrus	15,000	330,000	April	155,600	47.2
Upland Heights	3,000	66,000	April	71,500	108.3
		Lemons			
Alta Loma	3,200	70,400	April	28,300	40.2
Etiwanda	2,500	55,000	April	12,900	23.5
Mountain View	1,600	35,200	April	16,000	45.5
Old Baldy	2,000	44,000	April	31,600	71.8
San Dimas	3,600	79,200	April	65,000	82.1
Upland Lemon	14,000	308,000	May	259,000	84.1

1/ "Handled" implies volume of fruit received and washed, sorted, and/or graded.

2/ For oranges, these data were calculated from information obtained from the O.K. Exchange in regard to assessments.
For lemons, data are based upon monthly picks.

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moderately good year as regards volume of fruit produced. In one house, capacity was fully utilized. Data are not available for the sixth house handling oranges. Three of the six houses handling lemons operated at less than 50 per cent of full capacity during the month of peak receipts of fruit in 1950-51. Three houses operated at 70 per cent and higher. The largest house (Upland Lemon) operated at 84 per cent of capacity.

Per cent utilization of lemon storage capacity was obtained by comparing the peak volumes of lemons carried in storage (based on biweekly reports of the Lemon Administrative Committee) with the storage capacity rating supplied by managers. Data were not available for one house. In two houses less than 50 per cent of capacity was utilized, in another, less than 70 per cent. In the other two houses, however, 90 per cent or more of storage capacity was used (Table 11).

These estimates, rough as they may be, are of considerable significance in any consideration of a plan for consolidating packing house facilities. It may be concluded that three houses handling lemons and all except one handling oranges are making very poor use of their facilities. In view of further declines in acreages of fruit in the area, even poorer utilization of facilities may be expected during the next few years.

Analysis of Packing Costs in Area

Introduction.--In the first section of this report it was noted that costs per box of packing all types of citrus fruit had just about doubled between 1939-40 and 1949-50 and that the trend of such costs was still upward (p. 18). Moreover, the Farm Credit Administration study on costs of packing citrus fruit (previously referred to, p. 21) indicated that there was an inverse relationship between the volume of fruit handled in individual packing houses and their unit costs of packing. Under the terms of reference from the Board of Directors of the Ontario-Cucamonga Fruit Exchange, special emphasis was placed on an analysis of packing house costs and the effect thereon of variations in the volume of fruit handled between and within houses from year to year. Finally, it would seem logical that any study evaluating the feasibility of consolidating packing house operations should be predicated largely upon an analysis of volume-unit cost relations.

Determining volume-cost relations presents many difficulties, especially where cost comparisons between houses (or associations) are involved. These difficulties may be grouped under three main headings:

Table 11

Per Cent of Lemon Storage Capacity Utilized (1950-51)

Name of Association	Storage capacity (cars)	Fruit in storage (peak month)	Per cent of storage capacity utilized
Alta Loma	130	62	47.7
Etiwanda	70	N.A.	
Mountain View	200	40	20.0
Old Baldy	150	101	67.3
San Dimas	180	173	96.1
Upland Lemon	620	578	93.2

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[illegible]	[illegible]	[illegible]	[illegible]

(a) those connected with the fact that only a small number of associations participated in this study; (b) those connected with variations in accounting practices among houses, and (c) those arising because many factors other than volume of product handled have an influence upon unit costs of operation. Although some of these problems are of general application in studies of this nature, they will be considered briefly principally from the standpoint of the packing houses participating in this study. In the next few pages attention will be directed to the nature of these problems and the procedures adopted by the authors to resolve or mitigate the particular difficulties encountered.

Small Number of Associations.--As four of the eight houses were combination houses (having both orange and lemon departments), two were lemon houses, and two orange houses, it was possible to obtain only six observations on costs of packing oranges and a similar number for lemons, for any single year. As the area under study, in common with most other parts of California, had experienced widely varying outputs of fruit during the years 1948-49 to 1950-51, it was decided to obtain, from each house, volume and cost data on packing operations for three years. It was considered that if cost data for the first two years could be adjusted upward for increases in the prices of cost factors, such as labor, materials, taxes, etc., it would be possible to obtain a wider base for unit cost comparisons not only between houses but also within houses from year to year.[10/]

Problems and Adjustments:--Accounting Data.--In order to ensure a maximum degree of comparability of cost data between and within houses, it was necessary to analyze carefully the basic accounting procedures followed by individual houses and to make such adjustments as were deemed desirable and were not too time consuming. The basic data used were the annual reports made by firms of public accountants to the Boards of Directors of each association,[11/] supplemented where necessary by additional information, obtained from the books and records of associations, on volumes

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10/ These adjustments are presented in the groups of tables labeled "2nd Adjustment."

11/ Several associations included the balance sheet and operating statements from the auditors' reports in their annual reports to members.

of fruit received and disposed of through different sales outlets--packed, loose, and by-products.

After a preliminary examination of the annual operating statements for individual associations, it was found that adjustments for purposes of comparison would fall into five categories. These were concerned with: (a) differences in the treatment, by houses, of packing house revenue; (b) cost classifications and nomenclature; (c) provision of depreciation reserves; (d) obvious errors in accounting data; and (e) cost allocations. These are dealt with consecutively in the following subsections.

(a) Packing House Revenue.--The annual revenues of associations, out of which packing costs are met, are obtained from "retains" or deductions from the proceeds of sales on behalf of individual grower-members. The usual practice in packing houses is to make a deduction of so many cents a box of packed fruit, a smaller deduction per box of fruit sold loose, and a deduction of so many dollars a ton on fruit sent to the orange or lemon products plants for processing.[12/] The scale of these deductions, in individual associations, ostensibly is geared roughly to anticipated costs of handling fruit sold through the different sales outlets.[13/] As the bulk of fruit is received from growers in packed form, it has become customary for individual associations to report to members the average annual costs on a per packed box basis. Because growers shipping fruit to different houses often compare such unit costs, there is a predisposition on the part of packing house managers to report low costs per unit. In the citrus industry generally, several accounting devices may be used to obscure the actual unit costs incurred in handling packed fruit.

Two practices were followed in the O.K. area in dealing with packing revenues and operating costs, both defendable from an accounting standpoint.

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12/ In some associations additional sources of revenue may be from profits on operation of an ice plant or from operation of labor camps. These, however, were not important in the area under study.

13/ Normally, the total annual deductions (in order to provide a margin of safety) would be somewhat greater than total annual operating costs, the operating balance or overage (revenue-costs) being returned to members in the final year-end settlement.

The first, used in six of the houses, was to pool all revenues, from whatever source, in a single revenue account and to allocate overhead and indirect expenses on some agreed upon basis among packed, loose, and by-products fruit. In the other two houses it was the practice to regard as packing house revenue only the retains on packed and loose fruit, the latter being only a minor source of revenue for these houses. Deductions from the sale of by-products fruit were regarded as a credit against the costs of packing house labor, and/or depreciation, and salaries. The problem of interplant or interyear comparisons is complicated further by the fact that the scale of retains, by individual houses, on by-products fruit varied from house to house and from year to year for some houses.

After careful consideration it was decided that the comparability of data would be enhanced if, in all houses, revenue on by-products fruit was regarded as part of the over-all revenues for packing houses. The cost data shown in the annual audit reports for the two houses concerned, for labor, and/or depreciation, and salaries, were thus increased by the amounts retained each year on by-products fruit. Packing house revenue was increased by the same amounts.[14/]

(b) Cost Categories and Nomenclature.--Another problem, not of particular importance in the area under study, is the variation in the number of cost accounts summarized in the annual reports, and the nomenclature thereof. In this area the books of five of the associations were audited by a single firm of public accountants which had installed, in each house, more or less uniform cost categories and accounting procedures. This same firm had at one time audited the books of the other three associations, and their present auditors have continued to use the old cost classifications. This uniform classification system simplified the comparison of expense items.

A minor complication arose from the fact that several of the smaller associations grouped all labor expenses under a single heading--packing house labor. Four of the associations, however, had two labor categories--packing labor (wages paid only for packing) and general house labor (wages paid to workers on all tasks other than packing). Rather than attempt to break down labor costs for three years into the two subclassifications, it

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14/ These adjustments were incorporated in the second group of summary cost tables labeled "1st Adjustment."

was decided to obtain a reasonable approximation by (1) determining, for the four houses that did make this distinction, the ratio of labor for packing only, to all labor costs;[15] (2) averaging the ratios for lemon operations and orange operations separately; and (3) applying these averages to the total labor costs of the other four houses.[16]

(c) Depreciation Reserves.--Variations in the practices followed by individual associations in regard to depreciation reserves on plant and equipment seriously vitiated the comparability of cost data.[17] In analyzing the annual reports of individual associations it was found that some of them provided for depreciation on the straight-line principle year in and year out. Usually the rate of depreciation was 2½ per cent on buildings and 10 per cent on equipment although there were minor variations from these rates. In another house, depreciation was provided annually on a per field box basis. The total amount provided each year thus varied with the number of field boxes received. Two other associations provided little or no depreciation in years of low production (e.g., 1948-49), and customary rates of depreciation only in years of moderately high production. Finally, one association, anticipating that new operating techniques (see p. 21) would make much existing equipment obsolete, decided to write off fixed assets (other than land) at much higher than customary rates during the years 1949-50 and 1950-51. For example, this association depreciated buildings in 1950-51 at the rate of 5 per cent, and equipment at the rate of 20 per cent. The rates during the previous year were somewhat lower.

For purposes of comparability, depreciation rates for several of the houses were recomputed by the authors, roughly on the basis of 2½ per cent on buildings and 10 per cent on equipment.[18] This corrective procedure may have some defects since the time of installation of equipment or

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15/ It was found, in the four houses that did make this distinction, that there was only a moderate range between the highest and lowest ratios for individual houses in any one year although there was some variation in the ratios for orange operations from year to year for all houses.

16/ Incorporated under tables labeled "1st Adjustment."

17/ Decisions regarding the rates of depreciation to be set aside annually are made by the Board of Directors of each association.

18/ Reflected in data of series of tables labeled "1st Adjustment."

erection of buildings would influence the original cost. For example, the same type of equipment installed in 1948 would probably have cost considerably more than if it had been installed in 1942. This variation in regard to equipment is probably not too serious because most associations tend to install newly developed equipment within a year or two of each other. The problem is more serious for buildings. It was decided not to attempt corrections for this factor because even large variation in original costs of buildings would still be only a minor factor in considering total unit costs of handling packed fruit. Furthermore, corrections would have to be made for variations in quality of buildings as well as original costs--necessitating architectural and engineering appraisals not feasible in this study.

(d) Correction of Obvious Errors in Cost Data.--Preliminary comparisons of unit cost data brought to light obvious inconsistencies in material costs in two houses. In both these houses, material costs per unit in one year were considerably lower than in the following year, and were also out of line with similar costs in other years. The managers of both houses stated that errors had been made in determining year-end inventories of packing materials. In the case of one house, a carload of box shook en route at the time inventory was taken, but previously paid for, was charged to one year although the shook was used the following year. In the case of the other house, errors had been made in extending inventory totals. Appropriate corrections were made which resulted in bringing the materials costs per unit more nearly in line with those in other houses--at least within the range of comparability.

(e) Cost Allocations.--Before the operating statements obtained from individual houses could be analyzed, two major decisions had to be made in regard to cost allocation. The first was of primary concern in combination houses, and involved a suitable basis of allocation of certain cost categories (mainly indirect or overhead costs) between the orange and lemon departments. Customary procedure in all combination houses was for such costs to be prorated between the orange and lemon departments on bases mutually agreed upon by the packing house managers and the public accountant employed by the board to conduct the annual audit of the books of associations. Enquiry indicated that such allocations were made only after careful and detailed analysis of the several factors involved. In view of this fact, and because, in most houses, direct costs chargeable

to the orange and lemon departments account for over 60 per cent of the total costs of handling fruit, it was decided to accept the allocations as shown in the audit reports.

The second problem involved allocation of total annual costs in the orange or lemon departments among packed fruit, fruit sold loose, and fruit sent to the products departments. As the great bulk of fruit received by houses each year is shipped in packed form, it was thought desirable to obtain a final unit cost figure which would reflect, as nearly as possible, the actual cost of packing a box of fruit. Unfortunately, most of the houses do not keep their records in sufficient detail to permit a breakdown of such costs as general packing house labor, salaries, depreciation, interest, etc., for fruit sold through different outlets.

After consultation with packing house managers and bookkeepers and a firm of public accountants in San Bernardino,[19/] it was decided to adopt the following procedure: Use the total number of boxes of fruit packed as the divisor in determining direct unit costs of packing (packing materials and packing labor), and the packed box equivalent of all fruit handled (packed, loose, and by-products) as the divisor for determining indirect or overhead unit costs (miscellaneous costs, salaries, depreciation, etc.). It is probable that this method understates, to some extent, the actual unit costs for packed fruit, as it is reasonable to expect that packed fruit should bear a more than proportionate share of such expenses as salaries and depreciation. The margin of error, however, would not be too serious in the total unit cost figure in view of the fact that variable costs (or direct packing costs) constitute over 60 per cent of total costs, and packed fruit accounts (in most years) for 70 per cent or more of all fruit handled. The alternative would have been a laborious, and still arbitrary, task of allocating individual cost items.

Factors Influencing Unit Costs.--In this study attention was directed primarily at the relation of volume to unit costs both within and among packing houses. Economists of course realize that numerous factors other than volume may have a direct bearing on unit costs, for example, per cent of capacity utilized. A house handling a small volume of fruit, but operating at or near full capacity, may have unit costs of packing as low as a house handling a much larger volume but operating well below full

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19/ This firm has had many years' experience in auditing the books of cooperative associations engaged in the packing of citrus fruit.

capacity.[20] Seasonal (including daily and weekly) variations in the volume of fruit handled may also be an important factor both between houses and between years. If fruit arrives at a plant steadily in more or less constant volume, both labor and plant can be used more efficiently. Variations in the average size and quality of fruit available to houses in different years may be another factor. In years when fruit is of poor quality and of small average sizes, costs per packed box are likely to be much higher (more time to pack a box, more wrappers, more care in eliminating poor quality fruit) than in years when fruit is of better over-all quality. It may be that, in a particular house, unit costs should be considered in relation to prices received. More care and expense in packing may result in premium prices for fruit sold. It is also conceivable that higher costs in one category (e.g., higher expense and depreciation on equipment) may to some extent offset lower prices in another category (e.g., labor). This would be true if one house made greater use of mechanical equipment on tasks which, in another house, were performed by hand labor. Finally, one house may obtain certain cost factors at lower prices than others--for example, its average level of wages paid might be lower than that for the area in general.[21]

In spite of the fact that unit costs may be influenced by several factors, it was, nevertheless, decided to confine attention largely to the effect of volume upon such costs. This decision was taken first because of the small number of cases available for study (six lemon operations and six orange operations); second, because a study designed to measure (or eliminate) the effect of other factors would have been time consuming; and finally, because the most pressing problem facing the packing houses in the area studied was inadequacy of volume.

For these reasons, it should be emphasized that the volume cost curves which will be presented later (pp. 50,59) are merely generalized curves designed to show the best fit of the data available. They are not intended to represent economy of scale curves.

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20/ As will be shown later, this was true in the area under study.

21/ It is not intended that the above enumeration of factors that may influence unit costs shall be exhaustive. Although some of the more important factors, other than volume, are included, other factors not enumerated may be important under certain circumstances.

Unadjusted Unit Costs of Packing Oranges and Lemons.--Condensed unit costs of packing oranges, by houses, for the years 1948-49 to 1950-51 are summarized in Table 12, and of packing lemons, in Table 13. Because of the structures mentioned above, no useful purpose will be served by analyzing these tables in detail. Attention is called to the fact that three houses (Etiwanda, Mountain View, and Old Baldy) did not pack oranges, and two houses (Mountain View and Old Baldy) did not pack lemons in 1948-49, the heavy freeze years. Fruit of these houses was handled through Upland Citrus and Upland Lemon. It will be noticed also that Alta Loma made no provision for depreciation (in either the orange or lemon departments) in 1948-49, and only moderate provision the following year. Depreciation allowance was inadequate in several other houses. No depreciation is shown for Upland Heights in 1948-49 because this house had almost completely depreciated all plant and equipment. Attention is also directed to the fact that unit costs of materials for Alta Loma in 1949-50 were almost 25 cents higher for oranges and 12 cents higher for lemons than they were in the following year. A similar discrepancy appears in the data for San Dimas (lemons) for the years 1948-49 and 1949-50. These discrepancies were due to errors in inventory.

Unit Costs of Packing Oranges and Lemons: 1st Adjustment.--The data in Tables 13 and 14 are based on those in Tables 11 and 12 except that adjustments were made (1) to correct errors in inventory (in two houses); (2) to provide uniform rates of depreciation in all packing houses;[22] and (3) to eliminate revenue from retains on fruit sent to products plants from labor and other costs.[23]

The unit cost data in the tables of 1st adjustment probably represent as close an approximation as is feasible to the real costs per packed box incurred by each of the houses from 1948-49 to 1950-51. This intermediate adjustment was believed necessary to permit a more valid comparison of unit costs actually incurred in packing fruit and also to permit further adjustments designed to overcome variations in cost factors between years. These data were also useful in determining net returns (f.o.b. prices per box less packing costs) that could have been paid by houses to grower

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22/ No additional depreciation was computed against Upland Heights as this house had almost completely depreciated buildings and equipment.

23/ Details of adjustments are shown in Appendix B.

Table 12

Summary of Unit Packing Costs: Oranges: Basis of Annual Reports

Volume and cost group	Alta Loma A	Etiwanda B	Mt. View C	Old Baldy D	Upland Citrus E	Upland Heights F
	1948-49					
Total volume 1/	28,596	--	--	--	319,605	55,135
Packed boxes only	19,027	--	--	--	170,995	27,586
Materials	.4475	--	--	--	.5104	.3197
Labor	.3817	--	--	--	.2808	.3155
Miscellaneous	.2865	--	--	--	.0890	.1332
Salaries	.1423	--	--	--	.0380	.1265
Depreciation	--	--	--	--	.0320	--
Interest	.0749	--	--	--	.0009	.0023
Total cost	1.3329	--	--	--	.9511	.8972
	1949-50					
Total volume 1/	72,315	36,526	12,071	109,719	485,771	200,075
Packed boxes only	49,333	19,831	10,182	77,271	328,814	139,529
Materials	.5842	.4878	.5468	.4371	.5097	.4941
Labor	.1631	.2304	.4012	.3300	.2545	.3142
Miscellaneous	.1388	.1207	.3299	.1234	.0769	.0507
Salaries	.0621	.0870	.1473	.0987	.0255	.0500
Depreciation	.0596	.0190	.0261	.0263	.0197	.0057
Interest	.0576	.0030	.0292	.0008	.0007	.0004
Total cost	1.0654	.9479	1.4805	1.0163	.8870	.9151
	1950-51					
Total volume 1/	66,937	24,546	13,926	77,167	396,489	170,742
Packed boxes only	51,998	17,697	11,497	62,620	324,118	147,246
Materials	.3362	.4085	.5149	.5125	.4599	.4448
Labor	.2323	.2635	.3832	.3633	.2512	.2500
Miscellaneous	.1771	.1678	.2234	.1464	.0818	.0835
Salaries	.0460	.1135	.1091	.0589	.0397	.0742
Depreciation	.1430	.0252	.1030	.0593	.0269	.0074
Interest	.0487	.0074	.0164	.0040	.0015	.0006
Total cost	.9833	.9859	1.3500	1.1444	.8610	.8605

1/ Packed boxes plus loose fruit and by-products converted to packed boxes.

Source: Summarized from data in Appendix Tables 7 to 12.

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]					
[illegible] 1/	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]

Table 13

Summary of Unit Packing Costs: Lemons: Basis of Annual Reports

Volume and cost group	Alta Loma A	Etiwanda B	Mt. View C	Old Baldy D	San Dimas G	ULGA H
			1948-49			
Total volume 1/	47,408	75,707	--	--	130,651	523,851
Packed boxes only	28,971	51,986	--	--	79,656	330,025
Materials	.7703	.5461	--	--	.6720	.5554
Labor	.5232	.4525	--	--	.4425	.3849
Miscellaneous	.2654	.1596	--	--	.2654	.1682
Salaries	.1451	.0933	--	--	.1031	.0452
Depreciation	--	.0668	--	--	.0385	.1245
Interest	.1489	.0066	--	--	.0115	.0012
Total cost	1.8529	1.3249	--	--	1.5330	1.2794
			1949-50			
Total volume 1/	56,099	28,536	35,887	77,485	163,637	531,187
Packed boxes only	41,910	21,565	27,413	46,020	125,355	384,714
Materials	.5849	.4410	.5703	.5291	.6036	.6017
Labor	.4525	.5204	.5753	.5305	.4574	.4317
Miscellaneous	.2264	.1829	.3471	.1881	.1938	.1893
Salaries	.0947	.1211	.1479	.0865	.0826	.0433
Depreciation	.1118	.0633	.0536	.0238	.0589	.1268
Interest	.0970	.0041	.0293	.0401	.0081	--
Total cost	1.5673	1.3328	1.7235	1.3981	1.4044	1.3928
			1950-51			
Total volume 1/	83,514	48,705	53,046	130,243	202,518	728,587
Packed boxes only	62,557	30,655	39,164	84,868	133,421	479,670
Materials	.4692	.5372	.4992	.5946	.5067	.5887
Labor	.4360	.4298	.5599	.6058	.4539	.4334
Miscellaneous	.2371	.1559	.2788	.1503	.2022	.1666
Salaries	.0937	.0991	.1147	.0614	.0498	.0313
Depreciation	.1272	.0581	.0952	.1073	.0540	.1262
Interest	.0675	.0064	.0172	.0223	.0137	.0006
Total cost	1.4307	1.2865	1.5650	1.5417	1.2803	1.3468

1/ Packed boxes plus loose fruit and by-products converted to packed boxes.

Source: Summarized from data in Appendix Tables 13 to 18.

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[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

members (p. 63).

Inasmuch as the relative position of houses in regard to unit costs was not materially different in the tables representing the 2nd adjustment, further analysis of volume-unit costs relations at this stage would be largely repetitious.

Unit Costs of Packing Oranges: 2nd Adjustment.--In Table 16 the following further adjustments were made: (1) The cost per box was the actual price paid, per box, by houses, to the Fruit Growers Supply Company each year, less the patronage refund paid by that company.[24/] (2) All factor costs in 1948-49 and 1949-50 were raised to the 1950-51 levels. (3) All house labor costs were prorated between packing labor and general house labor. In effect this procedure provides some 15 volume-unit cost observations and thus serves much the same purpose as if similar data for only one year had been obtained from 15 packing houses. Furthermore, changes in prices of factors of production have been eliminated as far as possible.

Attention is drawn to the fact that in 1949-50 and 1950-51, unit costs of packing fruit in all houses were substantially below those of 1948-49, a poor crop year. Furthermore, the spread between the highest and lowest costs was considerably smaller in 1949-50 and 1950-51 than in 1948-49. Finally, in all three years the house handling the largest volume of fruit had the lowest (or next to lowest) unit cost per packed box, whereas the houses handling the smallest volume each year had the highest costs. The rather favorable unit cost position of Upland Heights was due in large measure to the fact that this house operated at full capacity in 1949-50 and 1950-51, whereas the largest house (Upland Citrus) operated at only about 50 per cent of capacity (see p. 31).

The data in Table 16 include both what may be termed operating costs (i.e., costs for labor, materials, salaries, power, etc., actually incurred in the handling of fruit) and capital costs (i.e., depreciation and interest on loans incurred in securing and maintaining capital equipment). Inasmuch as one house had almost completely depreciated its facilities, and several houses had little or no indebtedness, a more direct comparison of operating

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24/ This correction was necessary because of the practice of houses in applying the refund for one year as a credit to shook costs the following year. This tended to exaggerate variations in unit packing costs between years because of fluctuations in the volume of fruit handled and because of variations in the scale of the refund.

Table 14

Summary of Unit Packing Costs by Cost Groups: Oranges: 1st Adjustment 1/

Volume and cost group	Alta Loma A	Etiwanda B	Mt. View C	Old Baldy D	Upland Citrus E	Upland Heights F
	1948-49					
Total volume 2/	28;596	--	--	--	319;605	55;135
Packed boxes only	19,027	--	--	--	170,995	27,586
Materials	.4475	--	--	--	.5104	.3197
Labor	.4432	--	--	--	.2808	.3155
Miscellaneous	.2079	--	--	--	.0890	.1332
Salaries	.1423	--	--	--	.0380	.1265
Depreciation	.3320	--	--	--	.0320	--
Interest	.0749	--	--	--	.0009	.0023
Total cost	1.6478	--	--	--	.9511	.8972
	1949-50					
Total volume 2/	72;315	36;526	12;071	109;719	485;771	200;075
Packed boxes only	49,333	19,831	10,182	77,271	328,814	139,529
Materials	.5285	.4878	.5468	.4371	.5097	.4941
Labor	.3037	.3042	.4066	.3333	.2545	.3142
Miscellaneous	.1216	.1207	.3299	.1234	.0769	.0507
Salaries	.0621	.0870	.1473	.0987	.0255	.0500
Depreciation	.1374	.0464	.1188	.0424	.0197	.0057
Interest	.0576	.0030	.0292	.0008	.0007	.0004
Total cost	1.2109	1.0491	1.5786	1.0357	.8870	.9151
	1950-51					
Total volume 2/	66;937	24;546	13;926	77;167	396;489	170;742
Packed boxes only	51,998	17,697	11,497	62,620	324,118	147,246
Materials	.4959	.4085	.5149	.5125	.4599	.4448
Labor	.3170	.3084	.3940	.3633	.2512	.2500
Miscellaneous	.1307	.1678	.2234	.1464	.0818	.0835
Salaries	.0460	.1135	.1091	.0589	.0397	.0742
Depreciation	.1444	.0433	.1030	.0593	.0269	.0074
Interest	.0487	.0074	.0164	.0040	.0015	.0006
Total cost	1.1827	1.0489	1.3608	1.1444	.8610	.8605

1/ 1st Adjustment. Costs as per annual reports adjusted to insure uniformity in depreciation charges for each year; adjustment of materials costs due to errors in inventory; and elimination of credits (from deductions for by-product handling) in case of two houses; and breakdown of labor costs into packing and other labor.

2/ Packed boxes plus loose fruit and by-products converted to packed boxes.

[illegible]

Table 15

Summary of Unit Packing Costs: Lemons: 1st Adjustment 1/

Volume and cost group	Alta Loma A	Etiwanda B	Mt. View C	Old Baldy D	San Dimas G	Upland Lemon H
	1948-49					
Total volume 2/	47,408	75,707	--	--	130,651	523,851
Packed boxes only	28,971	51,986	--	--	79,656	330,025
Materials	.7136	.5461	--	--	.6720	.5554
Labor	.6363	.5228	--	--	.6439	.4617
Miscellaneous	.2185	.1596	--	--	.2654	.1682
Salaries	.1451	.0933	--	--	.1031	.0452
Depreciation	.2596	.0807	--	--	.1148	.0985
Interest	.1489	.0066	--	--	.0115	.0012
Total cost	2.1220	1.4091	--	--	1.8107	1.3302
	1949-50					
Total volume 2/	56,099	28,536	35,887	77,485	163,637	531,187
Packed boxes only	41,910	21,565	27,443	46,020	125,395	384,714
Materials	.6241	.4410	.5703	.5291	.5722	.6017
Labor	.5473	.5775	.5790	.5492	.5890	.4876
Miscellaneous	.1818	.1829	.3471	.1882	.1938	.1893
Salaries	.0947	.1211	.1479	.0865	.0826	.0433
Depreciation	.2292	.1547	.1404	.1828	.0954	.0980
Interest	.0970	.0041	.0293	.0401	.0081	--
Total cost	1.7741	1.4813	1.8140	1.5759	1.5411	1.4199
	1950-51					
Total volume 2/	83,514	48,705	53,046	130,243	202,518	728,587
Packed boxes only	62,557	30,655	39,164	84,868	133,421	479,670
Materials	.4692	.5372	.4992	.5946	.5363	.5887
Labor	.5979	.5159	.5649	.6378	.6461	.5098
Miscellaneous	.1945	.1559	.2788	.1503	.2022	.1666
Salaries	.0937	.0991	.1147	.0614	.0747	.0313
Depreciation	.1540	.0998	.0952	.1073	.0849	.0788
Interest	.0675	.0064	.0172	.0223	.0137	.0006
Total cost	1.5768	1.4143	1.5700	1.5737	1.5579	1.3758

1/ 1st Adjustment. Costs as per annual reports adjusted to insure uniformity in depreciation charges for each year; adjustment of materials costs due to errors in inventory; and elimination of credits (from deductions for by-product handling) in case of two houses; and breakdown of labor costs into packing and other labor.

2/ Packed boxes plus loose fruit and by-products converted to packed boxes.

Table 32

Summary of Part Payments Under Section 104 Agreements 1/

Items and Local Areas	Acre Base	Allotment	Net Yield	Gross Yield	Net Share	Gross Share
		Acres	Lb.	Lb.	Lb.	Lb.
		1951-52				
Total Values 2/	[illegible]	[illegible]	—	—	[illegible]	[illegible]
Indian Lands Only	[illegible]	[illegible]	—	—	[illegible]	[illegible]
Alberta	[illegible]	[illegible]	—	—	[illegible]	[illegible]
Delta	[illegible]	[illegible]	—	—	[illegible]	[illegible]
Fort Chipewyan	[illegible]	[illegible]	—	—	[illegible]	[illegible]
Grande Prairie	[illegible]	[illegible]	—	—	[illegible]	[illegible]
Peace River	[illegible]	[illegible]	—	—	[illegible]	[illegible]
Spirit River	[illegible]	[illegible]	—	—	[illegible]	[illegible]
Valleyview	[illegible]	[illegible]	—	—	[illegible]	[illegible]
Total Area	[illegible]	[illegible]	—	—	[illegible]	[illegible]
		1952-53				
Total Values 2/	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Indian Lands Only	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Alberta	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Delta	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Fort Chipewyan	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Grande Prairie	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Peace River	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Spirit River	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Valleyview	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total Area	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		1953-54				
Total Values 2/	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Indian Lands Only	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Alberta	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Delta	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Fort Chipewyan	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Grande Prairie	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Peace River	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Spirit River	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Valleyview	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total Area	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

1/ Net allotments, yields, shares are shown only for those years in which there was an in-kind payment. Gross allotments, yields, shares are shown for all years in which there was a payment. Net allotments are those after the deduction of one-tenth of the acreage for the operator, and deductions on account of other crops, and other debts.

2/ Indian Lands Only plus Crown Lands and Government Experimental Farm Lands.

costs may be secured by deducting the unit costs for depreciation and interest from total unit costs. These operating costs for each house are shown in Table 17.

The volume-unit-operating cost data for each house are plotted in Figure 6. The points representing the unit cost data for each house for each year are connected by straight lines. A generalized volume-cost curve to represent the data for all houses has been fitted to the volume-cost curves for individual houses. This procedure (in spite of its obvious defects) in reality makes available some 15 observations rather than only six (or three) observations that would have been available if each year's volume-unit costs were shown separately.[25/] It is clear from Figure 6 that (a) in the smaller houses, a moderate increase in volume handled resulted in a substantial reduction of unit costs of packing oranges, and (b) in the medium-sized and large packing houses, unit costs also tended to decline with increased volume, but not at so sharp a rate as in the smaller houses. It is reasonable to conclude that, if the four smaller houses could have handled still larger volumes of fruit, they could have secured further reductions in unit costs, although these deductions would probably be on a decreasing scale of magnitude.

The cost curves of three houses do not coincide too closely with the generalized cost curve, but these divergencies can be explained. In the case of Etiwanda which, because of wind damage, has experienced several years of small crops of indifferent quality, operating costs have been drastically curtailed by the elimination of services. In the case of the Old Baldy Association, it had become necessary to change management. Finally, the very favorable position of the Upland Heights Association can be ascribed to the fact that it was the only house operating at substantially full capacity, at least during the last two years.

Inconsistencies are apparent in the behavior of unit costs in two houses in 1949-50 and 1950-51. For Upland Citrus, unit operating costs were slightly higher in 1949-50 than in 1950-51 in spite of the fact that a somewhat larger volume of fruit was packed. Much fruit received from

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25/ It should be stressed that this generalized volume-cost curve is not intended to represent either a "cost envelop" or an "economy-of-scale" curve. It merely represents a best fit of volume-cost relations, between houses and in houses (year to year), of adjusted unit operating costs based on the volumes actually handled during the period studied.

Table 16

Summary of Unit Packing Costs: Oranges: 2nd Adjustment 1/

Volume and cost group	Alta Loma A	Etiwanda B	Mt. View C	Old Baldy D	Upland Citrus E	Upland Heights F
			1948-49			
Total volume 2/	28,596	--	--	--	319,605	55,135
Packed boxes only	19,027	--	--	--	170,995	27,586
Materials-Packing	.4215	--	--	--	.4497	.3751
Other	.0549	--	--	--	.0362	.0424
Total	.4764	--	--	--	.4859	.4175
Labor - Packing	.1836	--	--	--	.1434	.1549
Other	.2726	--	--	--	.1443	.1687
Total	.4562	--	--	--	.2877	.3236
Miscellaneous	.2261	--	--	--	.0959	.1421
Salaries	.1423	--	--	--	.0399	.1328
Depreciation	.3320	--	--	--	.0320	--
Interest	.0749	--	--	--	.0009	.0023
Total cost	1.7079	--	--	--	.9423	1.0183
			1949-50			
Total volume 2/	72,315	36,526	12,071	109,719	485,771	200,075
Packed boxes only	49,333	19,831	10,182	77,271	328,814	139,529
Materials-Packing	.4072	.4291	.4392	.4075	.4355	.4101
Other	.0639	.0034	.0558	.0277	.0358	.0356
Total	.4711	.4325	.4950	.4352	.4713	.4457
Labor - Packing	.1437	.1613	.1711	.1551	.1295	.1307
Other	.1679	.1500	.2473	.1872	.1312	.1556
Total	.3116	.3113	.4184	.3423	.2607	.2863
Miscellaneous	.1273	.1277	.3631	.1293	.0812	.0524
Salaries	.0621	.0914	.1547	.0987	.0267	.0525
Depreciation	.1374	.0464	.1188	.0424	.0197	.0057
Interest	.0576	.0030	.0292	.0008	.0007	.0004
Total cost	1.1671	1.0123	1.5792	1.0487	.8603	.8430
			1950-51			
Total volume 2/	66,937	24,546	13,926	77,167	396,489	170,742
Packed boxes only	51,998	17,697	11,497	62,620	324,118	147,246
Materials-Packing	.4050	.4470	.4382	.4169	.4354	.4195
Other	.0756	.0206	.0364	.0564	.0258	.0300
Total	.4806	.4676	.4746	.4733	.4612	.4495
Labor - Packing	.1594	.1608	.1921	.1231	.1248	.1200
Other	.1576	.1476	.2019	.2402	.1264	.1300
Total	.3170	.3084	.3940	.3633	.2512	.2500
Miscellaneous	.1307	.1678	.2234	.1464	.0818	.0835
Salaries	.0460	.1135	.1091	.0589	.0397	.0742
Depreciation	.1414	.0433	.1030	.0593	.0269	.0074
Interest	.0487	.0074	.0164	.0040	.0015	.0006
Total cost	1.1644	1.1080	1.3205	1.1052	.8623	.8652

1/ Basic data in 1st Adjustment amended as follows:
(a) Shook costs calculated by multiplying number of boxes packed by net cost for shook (cost per packed box paid to the Fruit Growers Supply Company less patronage refund per box).
(b) Expenses for 1948-49 and 1949-50 raised to the level of prices paid in 1950-51.
(c) Labor costs were prorated between packing labor and general house labor.

2/ Packed boxes plus loose fruit and by-products converted to packed boxes.

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 17

Costs per Packed Box Less Depreciation and Interest: Oranges

	Alta Loma A	Etiwanda B	Mountain View C	Old Baldy D	Upland Citrus E	Upland Heights F
	1948-49					
Volume: all fruit	28,596	Did	Did	Did	319,605	55,135
Packed boxes only	19,027	not	not	not	170,995	27,586
Total costs per unit	$ 1.7079	operate	operate	operate	$ .9423	$ 1.0783
Less depreciation and interest	.4069				.0329	.0023
Balance	$ 1.3010				$ .9094	$ 1.0160
	1949-50					
Volume: all fruit	72,315	36,536	12,071	109,719	485,771	200,075
Packed boxes only	49,333	19,831	10,182	77,271	328,814	139,529
Total costs per unit	$ 1.1671	$ 1.0123	$ 1.5792	$ 1.0487	$ .8603	$ .8430
Less depreciation and interest	.1950	.0494	.1480	.0432	.0204	.0061
Balance	$ .9721	$ .9629	$ 1.4312	$ 1.0055	$ .8399	$ .8369
	1950-51					
Volume: all fruit	66,937	24,546	13,926	77,167	396,489	170,742
Packed boxes only	51,998	17,697	11,497	62,620	324,118	147,246
Total costs per unit	$ 1.1644	$ 1.1080	$ 1.3205	$ 1.1052	$ .8623	$ .8652
Less depreciation and interest	.1901	.0507	.1194	.0633	.0284	.0080
Balance	$ .9743	$ 1.0573	$ 1.2011	$ 1.0419	$ .8339	$ .8572

TABLE IV

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]			
			[illegible]			
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

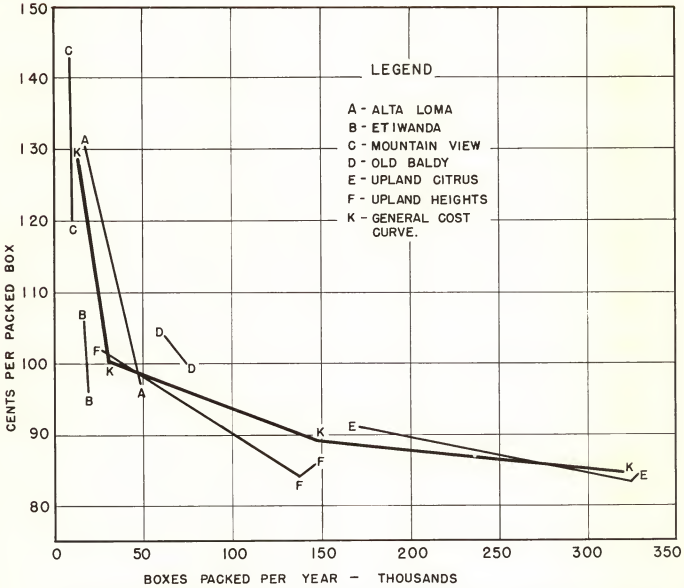

FIG. 6 - VOLUME OF ORANGES PACKED AND UNIT PACKING COSTS (EXCLUSIVE OF DEPRECIATION AND INTEREST.)

BASIS: ADJUSTED ANNUAL COSTS - YEARS 1948-49 TO 1950-51

growers that year was of poor quality so that a large percentage was sent to by-products. In the case of Upland Heights, although a larger volume of fruit was packed in 1950-51 than in 1949-50, the total volume of fruit handled was appreciably smaller.

Projected Packing Costs: Upland Citrus.--In spite of the fact that Upland Citrus Association handled nearly 500,000 packed box equivalents of fruit in 1949-50, it utilized only 50 per cent of its capacity. The other five houses, together, handled an additional volume of 430,000 packed box equivalents of oranges. Because Upland is the only house with sufficient capacity to handle all the fruit produced in the area by Sunkist Growers, it may be as well to determine conservatively what reductions in unit packing costs this house could have secured if it had handled all oranges (of the six houses) in 1950-51. A rough approximation of unit costs at higher volumes than those handled during the three years 1948-49 to 1950-51 can be obtained by the following procedure:

(1) Plot, on ordinary graph paper, the total costs of packing labor and packing materials for each of the three years, against associated volumes of fruit packed.

(2) Fit a straight line to the points so obtained, and project this line for higher volumes.

(3) Follow a similar procedure for total nonpacking costs (i.e., nonpacking labor, salaries, depreciation, etc.) incurred in handling all fruit.

(4) From the two curves so obtained (Figure 7), it is possible to read off the probable total costs that would have been associated with different volumes of fruit packed and handled.

(5) Divide the total costs so obtained (Table 18) by the associated volumes of fruit packed and handled. The data so obtained are plotted in Figure 8.

It is possible to read off, from these two curves, the approximate packing and handling costs that may have been associated with higher volumes. For example, in 1950-51 the six orange departments handled 916,000 field box equivalents of fruit, of which 615,000 were packed. Unit costs for packing labor and materials would have been about 58 cents, general handling costs, about 21 cents, or a total of about 79 cents per packed box--about 7 cents less, per box, than the cost actually incurred that year with the smaller volume handled.

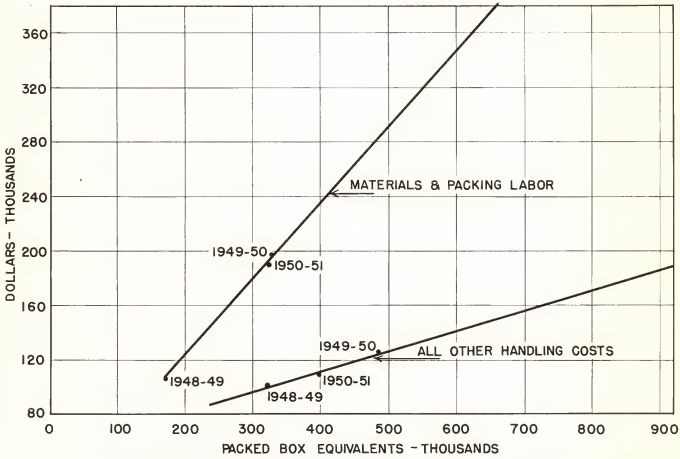

FIG. 7 — TOTAL COSTS OF PACKING & HANDLING ORANGES AT VARYING VOLUMES. UPLAND CITRUS ASSOCIATION.

SOURCE: CALCULATED ON BASIS OF 2 ND. ADJUSTMENT TABLES.

Table 18

Actual and Projected Packing and Handling Costs-
Varying Volumes-Upland Citrus Association

Packed fruit			All fruit handled		
Number of boxes packed	Total costs materials and packing labor	Cost per box packed	Packed box equivalent (number)	Total of non-packing expenses	Cost per packed box equivalent
	dollars	dollars		dollars	dollars
171,000	107,600	.6292	300,000	97,000	.3233
200,000	124,300	.6215	319,600	100,000	.3129
300,000	180,200	.6007	396,500	109,600	.2764
324,000	189,900	.5861	400,000	112,000	.2800
328,800	197,600	.6010	485,800	126,200	.2598
400,000	237,200	.5930	500,000	127,300	.2546
500,000	293,500	.5870	600,000	143,000	.2383
600,000	349,000	.5815	700,000	158,300	.2261
			800,000	173,500	.2169
			900,000	189,000	.2100

Source: Data underlined were calculated from data on Upland Citrus Assn. in Table 16. All other data on total costs were obtained by interpolation from lines in Figure 8. The unit cost data were calculated from the data on interpolated total costs.

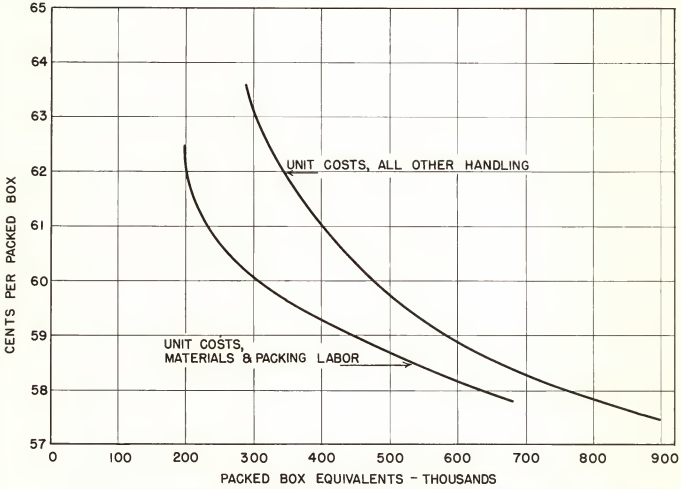

FIG. 8 - COST PER PACKED BOX EQUIVALENT OF PACKING & HANDLING ORANGES WITH VARYING VOLUMES. UPLAND CITRUS ASSOCIATION.

Admittedly this method of projecting unit costs with larger volumes is somewhat crude, but it does permit a rough and reasonably conservative approximation of potential savings that would have occurred if all oranges and grapefruit handled by six houses had been concentrated in the Upland Citrus Association. Members of that house would have benefited by about 7 cents a packed box; benefits to members of the higher-cost houses would have been much greater.

Unit Costs of Handling Lemons: 2nd Adjustment.--The data in Table 19 are based on those in Table 15, with adjustments similar to those made for unit costs of packing oranges (p. 44). Marked variations are apparent in the adjusted unit costs of packing lemons in each of the three years. In 1948-49 the range in costs per packed box was from $1.3989 (Upland Lemon) to $2.0815 (Alta Loma). In the following year, the range was from $1.4003 to $1.8404, and in 1950-51, from $1.3386 to $1.6382. The range between highest and lowest costs was smallest in the latter year when all houses (except Etiwanda) handled the largest volume of fruit. It is noteworthy that, in each of the three years, the house handling the largest volume of fruit (Upland Lemon) had substantially lower costs per unit than did any other house.

As in the case of oranges, the comparison of unit costs between houses is somewhat obscured by the fact that some houses have substantial indebtedness (and hence heavy interest payments), whereas others have none. The actual unit costs of operation (total unit costs less unit costs for interest and depreciation) are shown in Table 20 and are illustrated graphically in Figure 9. While these data again reflect the inverse relation between volume of fruit handled and unit operating costs, there appears to be some inconsistency in the behavior of costs for individual houses. In the case of three houses, unit operating costs were somewhat higher in 1950-51. In spite of the larger volumes of fruit packed that year, greater volumes of fruit received were sold loose or sent to the Orange Products Company. Furthermore, the average size of fruit handled in 1950-51 was smaller than during the preceding year. This resulted in higher costs for packing materials (mainly for wraps) and higher labor costs for packing. Unfortunately, with the small number of houses involved it was not possible, by usual statistical means, to eliminate the effects

Table 19

Summary of Unit Packing Costs: Lemons: 2nd Adjustment 1/

Volume and cost group	Alta Loma A	Etiwanda B	Mt. View C	Old Baldy D	San Dimas G	Upland Lemon H
			1948-49			
Total volume 2/	47,408	75,707	--	--	130,651	523,851
Packed boxes only	28,971	51,986	--	--	79,656	330,025
Materials-Packing	.4717	.5096	--	--	.5249	.4962
Other	.1703	.0456	--	--	.1309	.1006
Total	.6420	.5552	--	--	.6558	.5968
Labor - Packing	.2226	.2241	--	--	.2949	.2077
Other	.4065	.3136	--	--	.3664	.2667
Total	.6535	.5377	--	--	.6613	.4744
Miscellaneous	.2324	.1704	--	--	.2793	.1775
Salaries	.1451	.0980	--	--	.1083	.0475
Depreciation	.2596	.0807	--	--	.1148	.0985
Interest	.1489	.0066	--	--	.0115	.0012
Total cost	2.0815	1.4486	--	--	1.8310	1.3989
			1949-50			
Total volume 2/	56,099	28,536	35,887	77,485	163,637	531,187
Packed boxes only	41,910	21,565	27,443	46,020	125,395	384,714
Materials-Packing	.4566	.4849	.4910	.4870	.4896	.4958
Other	.1251	.0290	.0687	.0312	.0808	.0631
Total	.5817	.5139	.5597	.5182	.5704	.5589
Labor - Packing	.2234	.2341	.2331	.2551	.2368	.2027
Other	.3401	.3606	.3633	.3089	.3698	.2992
Total	.5635	.5947	.5964	.5640	.6066	.5019
Miscellaneous	.1914	.1928	.3593	.1937	.2017	.1960
Salaries	.0947	.1271	.1553	.0865	.0868	.0455
Depreciation	.2292	.1547	.1404	.1828	.0954	.0980
Interest	.0970	.0041	.0293	.0401	.0081	--
Total cost	1.7575	1.5873	1.8404	1.5853	1.5690	1.4003
			1950-51			
Total volume 2/	83,514	48,705	53,046	130,243	202,518	728,587
Packed boxes only	62,557	30,655	39,164	84,868	133,421	479,670
Materials-Packing	.4773	.4932	.4729	.4860	.5108	.4970
Other	.0533	.0294	.0468	.0582	.0485	.0545
Total	.5306	.5226	.5197	.5442	.5593	.5515
Labor - Packing	.2436	.2322	.2322	.2816	.2835	.2238
Other	.3543	.2837	.3327	.3562	.3626	.2860
Total	.5979	.5159	.5649	.6378	.6461	.5098
Miscellaneous	.1945	.1559	.2788	.1503	.2022	.1666
Salaries	.0937	.0991	.1147	.0614	.0747	.0313
Depreciation	.1540	.0998	.0952	.1073	.0849	.0788
Interest	.0675	.0064	.0172	.0223	.0137	.0006
Total cost	1.6382	1.3997	1.5905	1.5233	1.5809	1.3386

1/ Basic data in 1st Adjustment amended as follows:
(a) Shook costs calculated by multiplying number of boxes packed by net cost for shook (cost per packed box paid to the Fruit Growers Supply Company less patronage refund per box).
(b) Expenses for 1948-49 and 1949-50 raised to the level of prices paid in 1950-51.

2/ Packed boxes plus loose fruit and by-products converted to packed boxes.

of size in determining volume-unit cost relations.[26/]

There is a rather wide scatter in the unit operating costs of the five small or medium-sized houses, and a still wider spread in volume of fruit handled by these five houses and that handled by the large house (Upland Lemon). Because of these facts it was thought inadvisable to attempt to fit a generalized volume-unit cost curve to the data presented in Figure 9.

Possible Economies with Increased Volume.--In the analysis of unit costs of handling oranges it was shown that if the Upland Citrus Association could have handled all the oranges processed through the six orange departments, costs of packing could probably have been reduced by about 7 cents a box. No useful purpose would be served by attempting a similar projection of unit costs for the Upland Lemon Growers Association as this house is already operating at nearly full capacity. It is doubtful whether this house, with its present facilities, could handle an additional 50,000 boxes a year. Even with this additional volume it is doubtful whether unit costs could be reduced by more than one or two cents.[27/]

The conclusion is inescapable that one or two additional houses would be necessary, during the next few years at least, to handle lemons now processed through the remaining five houses. The San Dimas Lemon Association in reality lies outside the area and should probably consolidate with other near-by houses. The Etiwanda house is small and not well located as regards supplies. Any one of the three remaining houses has sufficient capacity to handle considerable additional volumes of lemons and could thus be used as a second lemon house. Unfortunately, the data available are not adequate to permit a projection of potential unit costs with higher volumes of fruit packed and handled. Two of the three houses did not operate in 1948-49, the year of very low production. Moreover, in 1950-51 the cost data are

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26/ Another apparent inconsistency is that the unit costs for the San Dimas Lemon Association were on a much higher level than those for other houses handling smaller volumes of fruit. Inquiry indicated that the probable reasons may be (a) the employment and wage policy of this house, and (b) the fact that this house handled lemons only, whereas the other, smaller houses were combination houses. The latter are able to spread overhead between orange and lemon departments.

27/ It is significant that in 1950-51 this house packed about 25 per cent more fruit than it did in 1949-50, but was able to reduce unit costs of packing by only 4.5 per cent.

[illegible]

[illegible]

[illegible]

Table 20

Costs per Packed Box Less Depreciation and Interest: Lemons

	Alta Loma A	Etiwanda B	Mt. View C	Old Baldy D	San Dimas G	Upland Lemon H
			1948-49			
Volume: all fruit	47,408	75,707	Did	Did	130,651	523,851
Packed boxes only	28,971	51,986	not	not	79,656	330,025
Total costs per unit	$ 2.0571	$ 1.4486	operate	operate	$ 1.8310	$ 1.3989
Less depreciation and interest	.4085	.0873			.1263	.0997
Balance	$ 1.6486	$ 1.3613			$ 1.7047	$ 1.2992
			1949-50			
Volume: all fruit	56,099	28,536	35,887	77,485	163,637	531,187
Packed boxes only	41,910	21,565	27,443	46,020	125,395	384,714
Total costs per unit	$ 1.7575	$ 1.5873	$ 1.8404	$ 1.5853	$ 1.5690	$ 1.4003
Less depreciation and interest	.3262	.1588	.1697	.2229	.1035	.0980
Balance	$ 1.4313	$ 1.4285	$ 1.6707	$ 1.3624	$ 1.4655	$ 1.3023
			1950-51			
Volume: all fruit	83,514	48,705	53,046	130,243	202,518	728,587
Packed boxes only	62,557	30,655	39,164	84,868	133,421	479,670
Total costs per unit	$ 1.6382	$ 1.3997	$ 1.5905	$ 1.5233	$ 1.5809	$ 1.3386
Less depreciation and interest	.2215	.1062	.1124	.1296	.0986	.0794
Balance	$ 1.4167	$ 1.2935	$ 1.4781	$ 1.3937	$ 1.4823	$ 1.2592

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

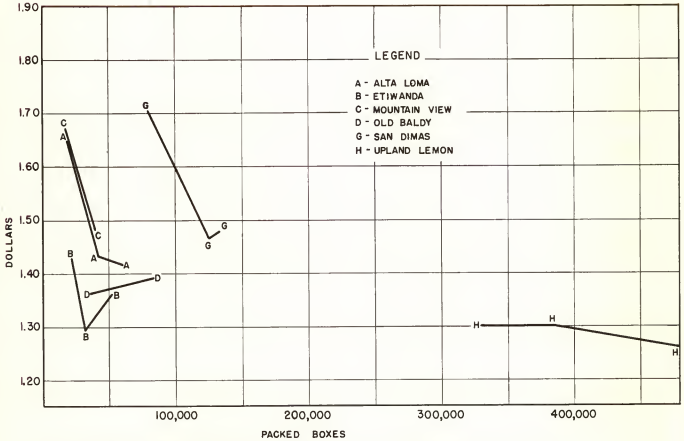

FIG. 9 - VOLUME OF LEMONS PACKED AND UNIT PACKING COSTS LESS DEPRECIATION AND INTEREST.
SOURCE : TABLE 30

unduly influenced by the small sizes of fruit handled. It is reasonable, however, to conclude that any one of these three houses could expect a substantial decrease in unit costs with increase in volume of fruit handled because (a) at least two houses in the area experienced a substantial decrease in unit costs between 1948-49 and 1949-50 with larger volume, and (b) all three houses concerned operated in 1950-51 well below full capacity. Specific recommendations for a second house to handle lemons will be made later.

Volume, Unit Costs, and Prices Received.--Not only did the houses that handled the largest volume of fruit have the lowest unit costs during the three-year period under study, but they apparently were able to secure somewhat better average prices per box for their fruit sold in the domestic market[28/] through the Ontario-Cucamonga Fruit Exchange.

During the 11-year period, 1940-41 to 1950-51, the Upland Citrus Association (the largest orange house) obtained the highest average annual f.o.b. price for navel oranges in five years (underlined figures in Table 21), and in two additional years received f.o.b. prices only 1 cent a box less than the house with the highest price. This house also received the highest average annual f.o.b. prices for valencias in six of the 11 years, and was within 5 cents of the highest price in two additional years. Over the same period, the Upland Lemon Growers Association (the largest lemon house) obtained the highest average annual f.o.b. prices in seven years, and was within 3 cents of the highest price in two additional years. By deducting the adjusted unit costs (1st Adjustment) from average annual f.o.b. prices received in each of the three years under study, it is possible to obtain a fair approximation of the net returns per box that could have been credited to members by each association for packed fruit sold in the domestic market (Table 22).

In 1948-49, the Upland Citrus Association could have returned to members (for navel oranges) from 26 to 69 cents more a packed box than did other associations, in 1949-50, from 28 cents to $1.26 more, and in 1950-51, from 13 cents to $1.04 more. For valencia oranges, this association could have returned to members from 36 to 65 cents more a box in 1948-49, from 8 cents to $1.18 more in 1949-50, and in 1950-51,

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28/ The domestic market (United States) absorbs the bulk of fresh citrus fruit packed in California.

from 24 to 53 cents more than did four of the five other associations. In 1950-51, Upland Heights could have returned to members about 4 cents more than did Upland Citrus. The Upland Lemon Growers Association could have returned to its members from 46 to 71 cents a box more than did other associations in 1948-49, from 14 to 78 cents more in 1949-50 (excluding Alta Loma), and from 17 to 58 cents more in 1950-51. Under the conditions that existed during the three years (1948-1951), such returns might well have made the difference between profitable operation and losses for a considerable number of growers in the area.

The question arises as to why the two largest associations appear to have such a price advantage over the smaller associations. Except in the case of the Etiwanda house, which for a number of years has handled much fruit of poor quality (the result of wind damage), indications are that there are no marked differences in quality of fruit received by the various houses. Nor is there any indication that the two large houses consistently follow a more rigid grading policy or that they put out a better packed box of fruit.[29/]

According to information obtained from Sunkist Growers Inc., and from the Ontario-Cucamonga Fruit Exchange, the larger associations have certain advantages over smaller associations in merchandising fruit. Markets differ with regard to the size, quality, varieties, and amounts of fruit they will handle. For example, some markets will pay a premium for a continuous volume of uniformly graded fruit. Eastern markets want large fruits; southern markets want small sizes. The large associations have sufficient volume to be able to meet these demands, whereas small houses may have to mix grades, sizes, and even varieties (oranges, lemons, and grapefruit) in order to fill a car. Because of these factors, the brand names of the larger houses (all other factors being the same) normally ensure a price premium.

Financial Considerations in Consolidation

Balance Sheet.--Table 23 shows a condensed statement of the assets and liabilities of the eight associations, for the fiscal years ending in 1951, extracted directly from the audit reports for each house. Because

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29/ Based on the opinions of members of the O.K. Fruit Exchange and of inspectors of Sunkist Growers Inc.

Table 21

F.O.B. Prices Received by Associations: Domestic Sales

Dollars per packed box

Years	Alta Loma Heights	Eti-wanda	Mountain View	Old Baldy	San Dimas	Upland Citrus	Upland Heights	Upland Lemon
				Navels				
1940-41	1.82	1.85	1.83	1.88		2.02	1.87	
41-42	1.72	1.97	1.70	1.99		2.07	1.96	
42-43	3.50	3.73	3.54	3.49		3.60	3.66	
43-44	3.99	4.02	3.89	3.98		3.93	3.97	
44-45	4.13	4.04	4.00	4.13	No	4.09	4.12	No
45-46	4.24	4.07	4.00	4.07	oranges	4.03	4.08	oranges
46-47	3.49	3.66	3.33	3.34		3.96	3.82	
47-48	3.11	3.39	2.90	3.36		3.38	3.30	
48-49	4.20	-	-	-		4.19	3.88	
49-50	3.71	3.58	3.72	3.78		4.29	4.04	
50-51	4.07	3.83	3.89	3.87		4.43	4.30	
				Valencias				
1940-41	2.31	2.10	2.39	2.44		2.43	2.50	
41-42	2.74	2.58	2.84	3.08		3.22	3.22	
42-43	4.02	4.06	4.02	4.01		4.11	4.06	
43-44	4.24	4.43	4.40	4.35		4.46	4.39	
44-45	4.04	4.41	4.24	4.34	No	4.48	4.37	No
45-46	4.66	4.89	3.10	4.71	oranges	4.40	4.30	oranges
46-47	2.43	2.51	-	2.79		2.88	2.74	
47-48	2.40	3.04	3.06	3.44		3.29	3.19	
48-49	3.24	-	-1/	2.71		3.19	2.78	
49-50	3.19	2.66	-1/	3.21		3.68	3.63	
50-51	3.54	3.27	-1/	3.65		3.61	3.65	
				Lemons				
1940-41	2.91	2.84	2.77	3.02				3.03
41-42	3.26	3.10	2.95	3.20				3.29
42-43	4.73	4.69	4.72	4.63				4.93
43-44	5.14	5.09	5.11	5.20				5.26
44-45	4.22	4.02	3.95	4.35				4.93
45-46	3.93	4.56	3.96	4.18		No	No	4.55
46-47	5.10	4.75	5.01	5.42		lemons	lemons	5.67
47-48	5.05	5.26	5.27	5.51				5.74
48-49	7.38	6.42	7.42	6.58				7.05
49-50	6.34	5.86	5.63	5.52	5.29			5.94
50-51	6.13	5.55	5.72	5.70	5.77			6.10

1/ Number of valencias packed.

Source: Ontario-Cucamonga Fruit Exchange. Price per packed box (f.o.b. packing house) on packed fruit sold in the domestic market.

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 22

F.O.B. Prices, Packing Costs and Net Returns per Box Payable to Growers-Domestic Sales.

Association	1948-49			1949-50			1950-51		
	Price 1/	Packing house costs 2/	Net return 3/	Price 1/	Packing house costs 2/	Net return 3/	Price 1/	Packing house costs 2/	Net return 3/
				Navel Oranges					
Alta Loma Heights	4.20	1.65	2.55	3.71	1.21	2.50	4.07	1.18	2.89
Etiwanda	-	-	-	3.58	1.05	2.53	3.83	1.05	2.78
Mountain View	-	-	-	3.72	1.58	2.14	3.89	1.36	2.53
Old Baldy	-	-	-	3.78	1.04	2.74	3.87	1.14	2.73
Upland Citrus	4.19	.95	3.24	4.29	.89	3.40	4.43	.86	3.57
Upland Heights	3.88	.90	2.98	4.04	.92	3.12	4.30	.86	3.44
				Valencia Oranges					
Alta Loma Heights	3.24	1.65	1.59	3.19	1.21	1.98	3.54	1.18	2.36
Etiwanda	-	-	-	2.66	1.05	1.61	3.27	1.05	2.22
Mountain View	-	-	-	-	-	-	-	-	-
Old Baldy	-	-	-	3.21	1.04	2.17	3.65	1.14	2.51
Upland Citrus	3.19	.95	2.24	3.68	.89	2.79	3.61	.86	2.75
Upland Heights	2.78	.90	1.88	3.63	.92	2.71	3.65	.86	2.79
				Lemons					
Alta Loma Heights	7.38	2.12	5.26	6.34	1.77	4.57	6.13	1.58	4.55
Etiwanda	6.42	1.41	5.01	5.86	1.48	4.38	5.55	1.41	4.14
Mountain View	-	-	-	5.63	1.81	3.81	5.72	1.57	4.15
Old Baldy	-	-	-	5.52	1.58	3.94	5.70	1.57	4.23
San Dimas	-	1.81	-	5.29	1.54	3.74	5.77	1.56	4.21
Upland Lemon	7.05	1.33	5.72	5.94	1.42	4.52	6.10	1.38	4.72

1/ F.O.B. prices per box obtained by Ontario-Cucamonga Fruit Exchange on all packed fruit sold in domestic market.

2/ Packing and handling costs as shown in tables.

3/ Price-unit costs in two preceding columns.

TABLE 11

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]

some of the houses followed the practice of charging little or no depreciation in years of poor crops, the fixed assets of some are undoubtedly considerably overvalued. On the other hand, the fixed assets of the Upland Lemon Growers Association are, for comparative purposes, considerably undervalued, because of that association's policy of charging heavier than normal depreciation in view of the potential obsolescence of much of its present machinery and equipment.

The Alta Loma Heights Citrus Association had a mortgage indebtedness amounting to nearly 40 per cent of its total liabilities. In view of the fact that this association's fixed assets are considerably overvalued (because of past depreciation policies) it follows that, even as a going concern, members' net equities would be very much less than shown in the annual report. Three other houses also have mortgage indebtedness, but on a much lower scale than for Alta Loma.

Liquidation Value of Assets.--If the downward trend in the volume of fruit available for packing in the area and the upward trend in packing costs continue, several of the houses may be forced to close down during the next few years--quite apart from any orderly consolidation that may be undertaken.30/ The question may well be raised as to the liquidation value of assets of the eight associations in the event of forced or voluntary liquidation.

It is difficult to compute liquidation values of assets of the several associations, and there may be a considerable margin of error for individual associations. The computation must involve a consideration of several factors and problematical or speculative occurrences. In spite of the inherent difficulties, it was considered necessary to make such a computation, partly for comparative purposes, but mainly as a guide to producer-members of the various associations in determining detailed plans of consolidation. Factors to be considered are:

(a) In all cases, land is carried on the books at original cost in spite of the fact that land values have risen several fold during the past few decades.

(b) In view of the declining volume of fruit in prospect, it may be assumed that the houses closed down in the event of consolidation will not

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30/ One packing house in the area was closed down in 1950, and another ceased operation early in 1952.

Table 23

Condensed Balance Sheets of Associations: Fiscal Years Ending in 1951

	Alta Loma	Etiwanda	Mt. View	Old Baldy	San Dimas	Upland Citrus	Upland Heights	Upland Lemon
				Assets				
Current assets	69,440	80,808	85,653	132,638	184,001	217,933	66,655	674,359
Investments								
Fruit Growers Supply Co.	25,670	16,507	12,990	34,004	32,561	69,707	29,284	111,572
Exchange Orange Products Co.	9,235	6,349	3,344	12,055	--	52,969	20,389	--
Exchange Lemon Products Co.	11,479	15,490	14,457	15,395	73,814	--	--	215,483
Orchard Protection Co.	--	--	--	15,100	--	26,550	8,200	31,425
So.Calif.Farmers Assoc.	17,458	5,972	11,442	10,794	--	1	1	1
Other	--	4,819	2,600	1,666	4,711	--	1,954	--
Total	63,842	49,137	44,833	89,014	111,086	149,227	59,828	358,481
Fixed assets								
Land	12,905	--	12,017	2,137	6,750	19,861	4,180	24,388
Buildings (net)	159,056	1	46,012	85,273	27,979	47,354	2	158,123
Equipment (net)	149,151	41,756	26,836	74,598	104,858	62,595	2,815	182,371
Other (net)	--	4,109	--	--	11,255	--	--	17,877
Total	321,112	45,866	84,865	162,008	150,842	129,810	6,997	382,759
Total assets	454,394	175,811	215,351	383,660	445,929	496,970	133,480	1,415,599
				Liabilities				
Current liabilities	64,328	48,092	39,115	68,531	127,940	85,764	29,785	419,667
Long-term indebtedness	180,000	--	17,000	50,000	24,000	--	--	--
Members equities and reserves								
Association revolving fund	151,772	78,761	118,198	200,239	162,521	191,721	45,468	788,024
Fruit Growers Supply Co.	31,153	18,201	16,900	34,691	39,375	87,506	29,283	--
Exchange Orange Products Co.	9,235	6,349	4,008	12,054	--	52,969	20,389	--
Exchange Lemon Products Co.	12,886	16,131	15,452	15,837	73,877	--	--	119,532
General Assoc.reserves	--	--	--	--	--	67,798	--	78,376
Other reserves	4,520	8,277	4,678	2,308	18,216	11,212	8,555	10,000
Total	209,566	127,719	159,236	265,129	293,989	411,206	103,695	995,932
Total liabilities	454,394	175,811	215,351	383,660	445,929	496,970	133,480	1,415,599

be operated, by potential purchasers, as packing houses but as storage warehouses or for other purposes. Some of the houses appear to be more strategically located than others for such alternative uses. This is particularly true of the five houses in downtown Upland and San Dimas, all of which are served by two railroads and are near main highways. The other three houses are less favorably situated in regard to residential, railroad, and highway facilities.

(c) Much of the machinery and equipment in the houses closed down will not find a ready market because it is highly specialized in use, the remaining houses will already be fully equipped, and, in view of the introduction of new packing techniques, some of the equipment in all houses is likely to become obsolete within a few years.

(d) In the event of liquidation, it may be difficult to realize on some of the investments in other corporations. Investments in the Fruit Growers Supply Company, the Exchange Orange Products Company, and the Exchange Lemon Products Company appear to be sound. The Orchard Protection Company and the Southern California Farmers' Association are local in their scope of operation. Their fortunes are tied more directly to the volume of fruit produced in the area. If several houses are closed down, the financial position of these houses may be seriously undermined.

(e) It is not known whether the lending institutions holding mortgages against the four houses will consider any scaling down of indebtedness.

In view of the factors listed above, it was decided to adopt the following procedure in determining, for comparative purposes, the approximate hypothetical liquidation value of assets of the several associations:

(a) Current liabilities were deducted from current assets to determine the residual value of quick or liquid assets.

(b) Investments in the Fruit Growers Supply Company and in the two products companies were accepted at full book value, whereas investments in the Orchard Protection Company and the Southern California Farmers' Association were placed at 25 per cent of their present book value.

(c) The book value of investments in land was tripled to reflect more nearly the appreciation in land values.

(d) Buildings over 20 years old were valued at 10 per cent of their original cost, largely on the basis of the salvage value of lumber.

(e) Buildings of less than 20 years were valued at one-third of original cost.[31]

(f) Machinery and equipment were valued at 20 per cent of net present book value (original cost less accumulated depreciation).[32]

(g) Liquidation values of assets were determined by summing the net of current assets over current liabilities, and the adjusted value of investments and fixed assets.

(h) Long-term indebtedness was deducted from the total liquidation value of assets, the balance being available for payment of members' equities. This balance is expressed as a per cent of net members' equity (total equity less unallocated reserves).

The computations for each association, made according to the above method, are shown in Table 24. On the basis of the hypotheses used, the Alta Loma Association would be able to return to members less than 5 cents on the dollar for all monies contributed by them to the various revolving funds. The Old Baldy Association would be able to pay only 46 cents, and three other houses, between 71 and 91 cents. Two houses, however, would be able to return to members in excess of 100 cents per dollar invested.

For two of the associations (Upland Citrus and Upland Lemon), these calculations are somewhat academic and are included mainly for purposes of comparison. Both of these associations are in a strong financial position and have low unit operating costs. The volumes of fruit handled by them are so large that all the other houses together could not, with their present facilities, handle all the fruit processed annually by these two large associations. These two houses thus may be regarded as having the strongest survival potential of any of the houses studied. They would have to form the core of any plan for consolidation in the area.

Distribution of Ownership of Capital.--In the event of liquidation, losses resulting from the sale or realization of assets would be borne by each member proportionate to his holdings of capital in the various revolving funds. The total investment, by a member, in such funds would

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31/ Most of these buildings were less than 15 years old.

32/ This method would tend to exaggerate somewhat the saleable or salvage value of investments in machinery and equipment in those houses that have, on occasion, provided less than normal depreciation, and to understate the value in houses which have reduced net values to very low levels.

Table 24

Assumed Liquidation Value of Assets of Associations

	Alta Loma	Etiwanda	Mt. View	Old Baldy	San Dimas	Upland Citrus	Upland Heights	Upland Lemon
Current assets	69,440	80,808	85,653	132,638	184,001	217,933	66,665	674,359
Less current liabilities	64,828	48,092	39,115	68,531	127,940	85,764	29,785	419,667
Excess assets over liabilities	4,612	32,716	46,538	64,107	56,061	132,169	36,870	254,692
Investments								
Total	63,842	49,137	44,833	89,014	111,086	149,227	59,828	358,481
Less 75 per cent of investments in Orchard Prot.Co. and So.Calif.Farmers Assn.	13,093	8,093	8,582	19,420	3,534	19,912	6,150	23,569
Net value of investments	50,749	41,044	36,251	69,594	107,552	129,315	53,678	334,912
Fixed assets								
Land-3 times original cost	37,715	--	36,051	6,411	20,250	59,583	12,540	73,164
Buildings-over 20 yrs.old (1/10th of original cost)	5,720	4,422	8,855	15,391	14,773	18,303	2,411	34,516
Buildings-less than 20 yrs.old (1/3rd of original cost)	61,056	--	4,064	--	--	--	--	87,485
Equipment (1/5th of present book value)	29,830	9,378	5,367	14,920	20,972	12,519	563	40,050
Net value:fixed assets	134,321	13,800	54,337	36,722	55,995	90,405	15,514	235,215
Total liquidation value all assets	189,682	87,560	137,126	170,423	219,608	351,839	106,062	824,819
Less long-term indebtedness	180,000	--	17,000	50,000	24,000	--	--	--
Balance available to members	9,682	87,560	120,126	120,423	195,608	351,889	106,062	824,819
Members' equity (less reserves)	205,046	119,442	154,558	262,801	275,773	332,196	95,140	907,556
Members' equity as per cent balance available	4.7	73.3	77.7	45.8	70.9	105.9	111.5	90.9

Table 23

[illegible] to [illegible] [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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depend on (a) the length of time he has contributed to such funds, (b) the volume of fruit handled by the association annually on his behalf, and (c) the period of revolution for each separate revolving fund. Each association had three or four separate revolving capital funds, namely, the Fruit Growers Supply Company Fund, the Exchange Orange Products Fund, the Exchange Lemon Products Fund, and the Association Revolving Fund. Investments by members in the first three funds are approximately counterbalanced by association investments in the revolving funds of these three companies (see Table 23). It is customary for these companies to revolve capital back to member associations on a five- to seven-year basis. Upon receipt of such refunds it is again customary for the associations to retire immediately capital contributed by members to these funds from five to seven years previously.

Contributions made by members annually to the Association Revolving Fund are invested in land, buildings, faciltiies, and other operating assets of each association. Some of the associations have revolved such funds over a five- to seven-year period. A few associations, however, have not revolved the association funds for over 10 years.

Investments by individual members (through their local associations) in the revolving funds of these three companies would be reasonably secure in the event of liquidation unless these funds have been pledged for mortgage indebtedness. Investments in the Association Revolving Fund would, however, depend upon what could be realized from the sale of land, buildings, and equipment. The question arises as to the extent of holdings by individual members in Association Revolving Funds and the magnitude of losses that may be incurred by such individuals.

Table 25 shows a sample of the holdings of investments of 30 per cent of the members of the large orange house and 50 per cent of the members of the smaller houses.[33/] In one association, about 83 per cent of the members held, at the end of the last fiscal year, less than $400 worth of Association Revolving Fund certificates; in five associations, between 70 and 76 per cent; in another, 59 per cent; and in the large orange association, 48 per cent. Less than 5 per cent of the members of the seven associations held certificates in excess of $3,000.

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33/ The large lemon house was excluded as it had recently consolidated all investments into a single fund.

Table 25

Per Cent of Members Holding Varying Amounts of Revolving Fund Capital

Dollars of capital	Alta Loma		Etiwanda	Mt. View	Old Baldy	San Dimas	Upland	Upland
	Orange dept.	Lemon dept.	Orange and Lemon depts.	Orange and Lemon depts.	Orange and Lemon depts.	Lemon dept.	Citrus Orange dept.	Heights Orange dept.
0-99	42.3	38.8	41.5	57.9	46.8	40.6	25.6	25.5
100-199	20.4	18.7	16.1	13.7	12.1	13.7	6.5	16.7
200-399	13.1	15.0	16.1	11.4	11.3	15.4	16.0	16.7
400-599	3.6	10.4	8.6	5.4	7.1	8.1	12.1	12.2
600-799	4.4	4.7	4.8	3.0	4.3	4.7	12.1	11.1
800-999	6.6	2.1	2.7	2.7	3.5	3.4	7.3	6.7
1,000-1,499	2.2	3.1	5.9	2.4	2.8	6.0	10.4	5.6
1,500-1,999	1.5	3.1	.5	.8	6.4	3.0	3.5	1.1
2,000-2,999	3.7	2.0	1.6	1.6	1.4	1.7	4.8	2.2
3,000 and over	2.2	2.1	2.2	1.1	4.3	3.4	1.7	2.2
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 40

The [illegible] of [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

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Even under the most adverse conditions of liquidation, six of the associations would be able to pay out to members 50 cents or more on the dollar. Thus from 50 to 80 per cent of members of the various associations would stand to lose no more than $200 of capital invested. A very small number of members in one or two associations would suffer losses in excess of $2,000. Only in the case of the Alta Loma Association would members face the unhappy prospect of losing their full equity in their association and other revolving funds.

In view of these facts, it is quite conceivable that in some of the houses with high unit packing costs a large proportion of the members would lose nearly as much annually in low returns for their fruit as their total equity in their association revolving fund. By the same token, it is not improbable that if all fruit available is concentrated in a smaller number of houses, the majority of members would find that enhanced returns on fruit would, within a few years, more than compensate for loss of equity in revolving funds of such houses as are closed down.

Conclusions and Recommendations

Trends in the Citrus Industry.--In California, as well as in western San Bernardino County, bearing acreage in navel and miscellaneous oranges has shown a downward trend since 1924-25. For grapefruit the trend has been downward since 1937-38, and for valencia oranges and lemons, since 1946-47. For all four main types of fruit the decline has been at an accelerated rate during the past few years. A marked decline in nonbearing acreage of all types of fruit within recent years portends a still further decline in bearing acreage in the years immediately ahead.

Yields per acre also appear to have fallen within recent years. Production of navel and miscellaneous oranges declined from 22.6 million boxes in 1944-45 to 15.1 million boxes in 1950-51, of lemons, from 39.0 to 28.1 million boxes, of grapefruit, from 2.3 to 1.4 million boxes. Lemon production reached a peak of 17.2 million boxes in 1940-41 but has since declined to 12.5 million boxes in 1950-51. Even more significant is the fact that smaller proportions of a reduced volume of production have been packed for fresh shipment within recent years.

Contributing factors to these over-all trends in acreage, production, and fresh shipments appear to be the increasing average age of groves in California, failure of replanted acreage to give satisfactory yields,

cultural handicaps in some areas, rising cultural, handling, packing, and marketing costs relative to prices (resulting in decreased returns to growers), and finally, loss of acreage, in some parts of the state, to residential and industrial subdivision. The latter factor has been quite substantial in the area under study.

There is every indication that these trends will continue in the western part of San Bernardino County where seven of the eight packing houses included in the study are located. (The eighth house is in eastern Los Angeles County.) Six houses handling oranges received, from members, only 71 per cent as much fruit during the period 1946-47 to 1950-51 as they did during the period 1940-41 to 1945-46, and the six houses handling lemons received only about 78 per cent. For some of the smaller houses the decline in volume was in excess of 40 per cent. Several of the associations operated at less than 50 per cent of capacity in 1950-51.

The analysis of past and prospective trends in production and packing of fresh fruit indicated that the area was oversupplied with packing house facilities, and supported the presumption that consolidation of such facilities might prove beneficial to the grower-members of the eight cooperative associations participating in this study. It next became necessary to determine an equitable and feasible basis for consolidation. For this purpose, main reliance was placed upon an analysis of operating practices, unit packing costs, and the financial position of the associations concerned.

Analysis of Packing Operations.--Operating statements and balance sheets, together with data on the volume of fruit handled, were obtained from the eight associations for the years 1948-49, 1949-50, and 1950-51. These three years were selected because of the widely varying volumes of fruit handled and packed. Of the eight associations, two handled oranges (and some grapefruit) only, two lemons only, and four (combination houses), oranges and lemons. Because of variations in accounting practices and obvious errors in some of the cost data, considerable care was necessary to adjust the cost data among houses for comparative purposes. Furthermore, in order to permit more accurate comparison between years for individual houses the various cost accounts for the years 1948-49 and 1949-50 were increased proportionate to the level of the prices of cost factors in 1950-51. Finally, the cost items were grouped under two main headings: direct packing costs, and all other costs. The number of boxes of fruit

actually packed was used as the divisor in order to obtain unit costs of packing only, and the packed box equivalent of all fruit handled was the divisor in obtaining other costs of handling fruit, including packed fruit.

The data so obtained indicated that, although it was evident that other factors were involved, there was a direct inverse relation between the volume of fruit handled and packed annually and unit costs of packing. This was true not only between packing houses but also between years in each house. The large orange house and the large lemon house had the lowest unit costs of packing in each of the three years. Furthermore, each of the packing houses had the highest unit costs of packing in 1948-49 when the volume of fruit handled was small as a result of a severe freeze.

Volume of fruit packed did not account for all the variations in unit costs among houses and in the three years. Per cent of capacity utilized and average size of fruit handled also appeared to be factors of some importance. A medium-sized orange house, which in 1949-50 and 1950-51 operated at about full capacity, had unit costs of packing approximately the same as the large orange house, which operated at only 50 per cent of capacity. In 1950-51, several of the lemon houses had unit costs of packing somewhat higher than in 1949-50, in spite of a somewhat larger volume of fruit handled. The explanation is that, in 1950-51, the average size of fruit packed was smaller than in the previous year.

All the smaller orange and lemon houses (with the exception of the Upland Height Citrus Association, an orange house) could undoubtedly have reduced unit costs still further had they handled larger volumes of fruit; but it is doubtful whether they could have reduced unit costs to the level of those in the Upland Citrus Association. A projection of costs with assumed larger volumes indicated that the Upland Citrus Association could probably have reduced unit costs of packing by several cents if it had processed all the oranges handled in 1950-51 by the six orange departments. It is doubtful whether the large lemon house (Upland Lemon Growers Association) could have effected any significant further reduction in unit costs with larger volume as this house operated in 1950-51 at almost full capacity.

Available evidence also indicated that houses handling a large volume of fruit, all other things being equal, usually obtain a higher average price for packed fruit than do the smaller houses. This advantage apparently results from the ability of the larger houses to supply the

trade with a consistent volume of fruit of uniform size and quality and also to supply markets with full carloads of fruit in the size most in demand.

On the basis of the above information, it was concluded that the large orange and the large lemon association would have to form the core of any plan for consolidation. By the same token it was concluded that several of the smaller packing houses would have to be closed down. It next became necessary to analyze the financial position of individual associations to determine net members' equity in the event of consolidation. This involved a considerable element of speculation as to the realizable values of assets of individual associations. On the basis of the assumptions made, it was estimated that one house would be able to return to members only about 5 cents on the dollar, another house, only 46 cents, three houses, just over 70 cents, and three houses, 90 cents or more. Consolidation would be particularly beneficial to grower-members of the smaller packing houses who would benefit, first, from a sizeable reduction in unit packing costs, and second, from somewhat better f.o.b. prices for packed fruit. It is probable that these benefits would, within a year or two, more than offset any loss in equity in associations that may have to be closed down.

Basic Considerations in a Plan for Consolidation.--Accepting the assumption that consolidation of packing house facilities in the area would be beneficial to all grower-members of existing associations, several questions arise. What would be a feasible and economically sound basis for reorganization? What disadvantages, if any, would attend consolidation? What would be the merits or demerits of two or more plans for reorganization? Should consolidation be effected immediately or is it possible by progressive stages?

There can be but little doubt that consolidation at an early date will result in the greatest benefit to growers, especially to members of the smaller associations. On the other hand, one or two of the associations are in good shape financially and have relatively low unit operating costs. The members of these houses may not be willing, at the outset, to participate in a plan of reorganization that may have some unforeseen hazards. Moreover, it is probable that the directors of one or two associations might expect to salvage a larger proportion of membership capital if their packing operations could be continued a few more years. Finally, directors and members of the two large associations in the area may be reluctant to participate in a plan

of consolidation that may result in only moderate gains for their own grower-members.

It is also necessary to point out that certain disutilities may accompany consolidation, apart from any loss of members' equity in existing associations. Many growers appear to place a relatively high value on the more intimate relation that exists between members of a small or moderate-sized cooperative association. They feel that member-association relations are less personal in a larger association. Another disadvantage is that in some of the smaller communities the local packing house is an important economic factor. It supplies full or temporary employment for members of the community. Local merchants may suffer loss of business if population moves away or if earnings are spent in towns in which the larger packing houses are located. Finally, a much smaller number of growers in the area would have the opportunity of serving as directors of cooperative associations. The prestige associated with service on boards of directors is valued highly by many growers.

In spite of these disadvantages or disutilities, the weight of evidence is that the financial position of growers in the area would be greatly improved if fruit is handled in a smaller number of houses operating more nearly at full capacity. In fact, for a comparatively large number of growers in the area, consolidation may mean all the difference between profit and loss on their farming operations. If the decline in the volume of fruit available in the area continues, as is likely, many growers--especially those who are members of the high unit cost houses--will lose not only their present equity in their associations but also such additional capital as may be subscribed during the next few years.

In view of these conclusions it may be as well to consider the merits or demerits of several different plans of reorganization or of a single plan with modifications to meet varying circumstances. Because of the strategic position of the large orange house and the large lemon house, it is logical to consider separately plans for consolidation of orange operations and of lemon operations.

In the proposals that follow, the first basic consideration is that consolidation should be approached largely from an industry or area standpoint--from the standpoint of the best interests of all the grower-patrons of the cooperative packing houses affiliated with the O.K.Exchange. As a consequence, a plan of reorganization or consolidation should be so

devised as not only to improve the returns to all growers in the area during the next few years, but also to reduce to a minimum the losses in equity capital invested by grower-members of some associations in packing-house facilities.

A second basic consideration is that any feasible plan of reorganization must revolve around the continued operation of the two large packing houses--the Upland Citrus Association (oranges) and the Upland Lemon Growers Association. This conclusion is based upon the facts that (a) both of these houses are in a strong financial position, (b) both have low unit operating costs, and (c) both now handle or have capacity to handle more fruit than the other six houses combined. It would be difficult, under existing circumstances and without the outlay of considerable additional capital, to expand the facilities of any or all of the other houses to handle the fruit now going to the two larger houses. These two houses appear to be directed by efficient boards of directors and managers.

A third basic consideration should be the avoidance of any substantial increase in capital invested in facilities by any houses which are to form the core of any plan for consolidation. This is important for two reasons. First, the area faces the prospect of a further decline in the volume of fruit available during the next few years. Second, revolutionary changes in the techniques of handling and packing fruit, which appear to be in the offing, would render obsolete much of the equipment now used in packing operations.

Consolidation: Orange-Packing Facilities.--The Upland Citrus Association, which in 1950-51 (a year of relatively high production) handled nearly 400,000 packed-box equivalents of fruit, was operating at only about 50 per cent of capacity. In spite of this, it had about the lowest unit costs of handling fruit. This house could, without undue strain and without investment of much additional capital, have processed all the oranges and grapefruit handled in 1950-51 by the six houses with orange departments. With this additional volume it could possibly have reduced packing and handling costs from 6 to 8 cents a packed-box equivalent (Table 16). This house has an excellent reputation for its fruit in the markets of the United States.

It is recommended, therefore, that a plan of consolidation envisage the eventual concentration of all oranges and grapefruit of cooperative growers in the area in the Upland Citrus Association. A modification of this proposal for the interim will be suggested later.

Consolidation: Lemon-Packing Facilities.--The situation with regard to consolidation of lemon-packing facilities is somewhat more complicated. The large Upland Lemon Growers Association, in 1950-51, operated at nearly full capacity. Undoubtedly a modification of annual picking schedules for lemons and immediate diversion of a larger proportion of fruit to by-products would enable this house to handle a somewhat larger volume of fruit than it did in 1950-51 without any decrease in over-all efficiency and without investment of additional capital in facilities. It is doubtful, however, whether this house could have processed all the lemons handled that year by all the other five houses with lemon departments as well as its own volume. Moreover, it is doubtful whether this house, which is now probably operating near optimum capacity, could effect any material decrease in unit operating costs with a larger volume.

A second complication is that two houses (the San Dimas Lemon Association, and the Etiwanda Citrus Fruit Association), are located on the fringes of the area served by the O.K.Exchange. The former association is adjacent to several other cooperative packing houses which compete for fruit grown in the area from which the San Dimas house draws its supplies. In addition a broad, sandy and stony wash separates the San Dimas supply area and the area from which the other associations affiliated with the O.K. Exchange draw their supplies. In view of these factors it would appear to be more economical for the directors and members of the San Dimas Lemon Association to consider the feasibility of consolidating operations with other adjacent associations.

The situation of the Etiwanda Citrus Fruit Association is somewhat different. Although there is another broad, sandy and stony wash between the towns of Etiwanda and Upland, there is some overlapping of supply areas between the Etiwanda Association and the associations located in or adjacent to Upland. Furthermore, there are no other cooperatively owned citrus packing houses near Etiwanda. Thus, the Etiwanda Citrus Fruit Association may be regarded as more definitely a part of the area served by the O.K. Exchange than is the San Dimas Lemon Association.

It is recommended that lemon-packing operations of the five houses with lemon departments (exclusive of the San Dimas Lemon Association) be concentrated in the Upland Lemon Growers Association and one other house. The selection of the second house for handling lemons presents some

difficulties. All of the four houses[34/] suitable are combination houses handling both oranges (including grapefruit) and lemons. The question then arises as to whether, under an area plan for consolidation, the second house selected to handle lemons should continue to handle oranges as well. It would appear reasonable to argue that, as most of the growers whose lemons would be handled by the second house also produce oranges, this house should continue, for the time being at least, to operate as a combination house. Although such an arrangement would not permit the Upland Citrus Association (oranges) to effect the maximum possible reduction in unit operating costs, it would permit the second house needed for handling lemons to spread overhead costs over a large volume of fruit--both oranges and lemons. An additional argument in favor of operation as a combination house is that, if the orange department is eliminated, most of the building vacated by this department could not be efficiently utilized in lemon operations. The orange-handling equipment, too, would have to be disposed of at a considerable loss.

The operation of a second house for the handling of lemons as a combination house could be regarded as an interim arrangement. If the volume of fruit available continues to decline or if changes in the technology of handling and packing oranges and lemons make it feasible, it may be desirable, within a few more years, to eliminate the second house and concentrate all oranges in the Upland Citrus Association and all lemons in the Upland Lemon Growers Association.

The actual selection of the second house needed for handling lemons should be based upon considerations of (a) suitability of location with regard to supplies of fruit, (b) alternative opportunities for disposal of property and equipment so as to reduce capital losses to a minimum, and (c) adequacy of facilities available in the individual houses.

The packing house of the Etiwanda Citrus Fruit Association can be excluded from consideration because (a) its storage capacity (70 cars) is inadequate, (b) it is inconveniently located with regard to supplies, and (c) the packing house stands on leased property. The Mountain View Fruit Association has an excellent location with regard to sources of fruit and

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34/ The Alta Loma Heights Citrus Association, the Etiwanda Fruit Association, the Mountain View Fruit Association, and the Old Baldy Citrus Association.

distribution. All of the four Cucamonga[8] packing and cooperative houses handling both oranges (including grapefruit) and lemons. The possibility exists as to whether, under an area plan for consolidation, the several houses adjacent to Upland lemons should continue to handle oranges as well. It would appear preferable to separate, in that all of the oranges whose lemons would be handled by the second house with lemon category, this house should continue, for the time being at least, to operate as a combination house. Although such an arrangement would run counter the Upland Citrus Association (proposal) to effect the maximum possible reduction in costs [illegible], it would permit the second house to avoid the handling issues to spread overhead costs over a large volume of both oranges and lemons. An additional argument in favor of operation as a combination house is that, if its orange department is eliminated, part of the building released by this department could not be efficiently utilized in lemon operations. The orange-handling equipment, too, would have to be disposed of at a considerable loss.

The question of a second house for the handling of lemons in a combination house could be regarded as an interim arrangement. If the volume of lemon fruit continues to decline, as it is [illegible] by the elimination of handling and packing oranges and lemons where it becomes, under the situation, within a few more years we eliminate the second house and concentrate all handling of the Upland citrus and all lemons in the Upland lemon association.

The actual selection of the second house needed for handling lemons should be based upon considerations of (a) suitability of location with regard to receiving of fruit, (b) advantageous arrangement for shipment of products and equipment to [illegible] handled fruit [illegible] and (c) adequacy of facilities available in the individual houses.

The packing house of the Etiwanda Citrus Fruit Association was developed from consideration because (a) its storage capacity (70 cars) is inadequate, (b) it is inconveniently located with regard to shipping, and (c) the packing house itself is leased property. The Mountain View Fruit Association has an excellent location with regard to sources of fruit and

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[8] The Alta Loma Heights Citrus Association, the Etiwanda Citrus Fruit Association, the Mountain View Fruit Association, and the Old Baldy Citrus Association.

transportation. It also has ample lemon-storage facilities (200 cars). Its capacity for receiving, washing, and handling both oranges and lemons is, however, limited. More important than any of these factors is the fact that, because of its location and the nature of its buildings, it probably has the best resale potential of any of the four houses considered. At the time of this investigation, negotiations were under way for the sale of this association's packing house to a firm not interested in fruit packing. Because of these factors it would appear advisable to eliminate this house also from consideration as a second house for handling lemons.

The choice, then, is between the Old Baldy Citrus Association, situated 2 miles north of Upland, and the Alta Loma Heights Citrus Association, situated about 4 miles northeast of Upland. Both houses are conveniently located with regard to sources of fruit--just off main roads. The Alta Loma house is somewhat better situated, with regard to railroad facilities, on the main line of the Western Pacific Railroad, whereas the Old Baldy house is on a spur line. The Alta Loma house has a larger capacity for receiving, washing, and handling both oranges and lemons, but has a storage capacity for lemons of 130 cars as compared with 150 cars for the Old Baldy house. Part of the Alta Loma house was constructed only in 1942, and it is thus in much better physical shape than is that operated by the Old Baldy Citrus Association. Internally, however, the Alta Loma house has the disadvantage, from an operational standpoint, of having its orange facilities located on an upper story, and its lemon operations on the ground floor. It is claimed that, because of the internal arrangement of this house, it could not be operated so efficiently as could a more conventionally constructed house with all packing operations located on a single floor.

Both of these houses are rather disadvantageously situated in regard to resale possibilities as both are about a mile or more north of U.S. Highway 66. The Alta Loma house is located in the small town of Alta Loma, but the Old Baldy house is not in an urban area. Because part of the Alta Loma house is of more recent construction and is located on a railroad, it would probably have a better resale potential than the Old Baldy house, provided a buyer could be found.

The most serious disadvantage to the Alta Loma Heights Association is its large mortgage indebtedness of $180,000, at the end of its fiscal year ending in 1951. This compares with $50,000 mortgage indebtedness of

transportation. It also has ample refrigeration facilities [illegible] the capacity for receiving, washing, and [illegible] is, however, limited. [illegible] than any of these [illegible] is the Best Foot, because of its location and the nature of its ownership, it probably has the most ample potential of any of the four houses considered. At the time of this investigation, negotiations were under way for the sale of this association's packing house to a firm not interested in fruit marketing. Because of this fact it would appear advisable to eliminate this house also from consideration as a second house for handling [illegible]

The choice, then, is between the Old Rainy Citrus Association, situated 7 miles north of Orlando, and the Pine Lake Heights Citrus Association, situated about [illegible] miles southeast of Orlando. Both houses are conveniently located with regard to sources of fruit—just off main roads. The Pine Lake house is somewhat better situated, with respect to railroad facilities, on the main line of the [illegible] railroad, whereas the Old Rainy house is on a spur line. The Pine Lake house has a larger capacity for receiving, washing, and [illegible] both [illegible], but has a smaller capacity for [illegible] of 150 cars as compared with 180 [illegible] for the Old Rainy house. Part of the Pine Lake house was constructed only in [illegible], and it is thus in much better physical shape than is that operated by the Old Rainy Citrus Association. Structurally, however, the Pine Lake house has the disadvantage, from an operational standpoint, of having its storage facilities located on an upper story, and its other operations on the ground floor. It is claimed that, because of this internal arrangement of this house, it might not be operated as efficiently as would a more conventionally constructed house with all packing operations located on a single floor.

Each of these houses [illegible] in regard to [illegible] possibilities as both are within a mile or two north of U.S. Highway [illegible]. The Pine Lake house is located in the small town of Pine Lake, and the Old Rainy house is not in an urban area. Because much of the Pine Lake house is of more recent construction and is located on a railroad, it would probably have a better resale potential than the Old Rainy house, provided a buyer could be found.

The most serious disadvantage to the Pine Lake Heights association is the large mortgage indebtedness of [illegible], at the end of the fiscal year ending in [illegible]. This compares with [illegible] mortgage indebtedness of

the Old Baldy Citrus Association. The members of the Alta Loma Heights Citrus Association would stand to recover a larger proportion of their equity if that house were selected as the second house for handling lemons. The members of the Old Baldy Citrus Association would lose a substantial proportion of their equity if this were done, whereas they could recover most of their investment if their house were selected.

Several members of the Old Baldy Citrus Association argue that the members of the Alta Loma Heights Citrus Association made a serious error of judgment in 1941 when they decided on the construction of a new building and that, therefore, they (the Alta Loma members) should bear the loss resulting therefrom. They argue further that the lemon-storage facilities of the Alta Loma house would be inadequate and that additional facilities would have to be constructed, necessitating additional capital investment. This, they claim, is inadvisable in view of the fact that, if volume of fruit continues to decline, the second house now needed for the handling of lemons may no longer be necessary. They point out further that, while there will be some strain on the larger lemon-storage facilities of the Old Baldy Citrus Association, it should be possible, in normal years, to handle all lemons with existing facilities. It was contended, furthermore, that, as growers are free to select the association with which they wish to affiliate, many growers now members of the four smaller combination houses would undoubtedly join the Upland Citrus Association (oranges) and the Upland Lemon Growers Association.

It is suggested that the final selection of a second house needed to supply additional facilities for the handling of lemons be settled by negotiation between the members of the Old Baldy Citrus Association and the Alta Loma Heights Citrus Association.[35/]

Basis for Future Organization.--To summarize, the recommendations involve (a) consideration, by the board of directors of the San Dimas Lemon Association, of the feasibility of participating in a plan of consolidation with associations in eastern Los Angeles County, (b) concentration of the handling of all the fruit now handled by the remaining seven packing houses into three houses--the Upland Citrus Association, the Upland Lemon Growers Association, and a third house to be determined by negotiation.

35/ The results of such negotiations will be referred to later.

the [illegible] Association. The members of the [illegible] [illegible] Association would stand to [illegible] a larger proportion of their equity if that house were eliminated [illegible] the remaining [illegible]. The members of the [illegible] Association would [illegible] a substantial proportion of their equity if both were closed, whereas they would recover most of their investment if their house were retained.

Several members of the [illegible] Association agree that the members of the [illegible] Iowa [illegible] Association made a serious error of judgment in 1931 when they decided to the reorganization of a new [illegible] and that, therefore, they (the [illegible] members) should bear the [illegible] [illegible]. They would further [illegible] that the [illegible] facilities of the [illegible] House [illegible] be inadequate and that additional facilities would have to be constructed, necessitating additional expense. [illegible] This, [illegible], is [illegible] in view of the fact that, if volume of fruit continues to decline, the period [illegible] of [illegible] may no longer be [illegible]. [illegible] [illegible] it was [illegible], [illegible] the [illegible] of the [illegible] association [illegible] the [illegible].

It is suggested that the first extension of a [illegible] be made to supply additional facilities for the handling of [illegible] as needed by negotiation between the members of the [illegible] association and the [illegible] association.1/

Basis for Future Negotiation.--In general, the recommendation involves (a) consideration, by the board of directors of all the three [illegible] associations, of the desirability of participating in a plan of consolidation with [illegible] in Eastern Los Angeles County, (b) consideration of the equity of all the [illegible] to the remaining [illegible] packing house [illegible] into three [illegible], the [illegible] association, and a [illegible] would have to be determined by negotiation.

1/ The results of such negotiations will be referred to later.

It would seem reasonable to expect that the Upland Citrus Association (oranges) and the Upland Lemon Growers Association would continue to operate as separate, cooperative corporations under their existing charters. Some minor amendments of by-laws and articles of incorporation may be necessary to permit affiliation of additional grower-members.

It is suggested that a new cooperative corporation be organized to operate the third house deemed necessary under the plan of consolidation. In order that the members of the new association not be burdened with the indebtedness of the house selected, and with unnecessary equipment, it is recommended that the new association purchase from the present association, at a fair valuation, only such buildings and equipment as can be fully and efficiently utilized.

In order to speed up the plan of consolidation it is recommended that such of the other associations in the area as decide to participate in the plan take steps immediately, or as soon as is feasible, to go into voluntary liquidation. The liquidation process for the individual houses would probably take some years. This is necessary in order to permit ample time to secure buyers for the buildings and also to permit revolution of capital funds now invested in the Fruit Growers Supply Company, the Exchange Lemon Products Company, the Exchange Orange Products Company, and other corporate enterprises. In disposing of buildings it would be advisable to ensure, so far as is legally possible, that the purchasers will not utilize the buildings for the packing of citrus fruit.

It is inevitable that, in a plan of consolidation, the grower-members of some of the associations (and especially the members of the Alta Loma Heights Citrus Association) that will have to go into voluntary liquidation will suffer a considerable loss of capital invested in their packing houses. If the plan of consolidation is regarded as a regional or area undertaking, it is suggested that the members of the three houses to be operated give consideration to the establishment of a sinking fund to compensate partially the grower-members of the houses to be liquidated for loss of equity in capital now invested in their associations. Such a procedure appears justifiable because, if the plan of consolidation is effective, the houses still in operation should experience some reduction in unit operating costs as a result of additional volume.

Merely as a basis for consideration, it is suggested that the sinking fund could be operated as follows:

(a) Growers of houses to be liquidated could be assured that they will eventually receive (from sale of assets and from the sinking fund), say, 70 per cent of capital invested in revolving funds during the past five years; and, say, 40 per cent of capital invested longer than five years.

(b) Each of the houses could contribute to the sinking fund at, say, ½ cent a field box for both oranges and lemons handled annually for, say, the next five years.

(c) If the three houses combined handle 750,000 field boxes of oranges and 1,100,000 field boxes of lemons a year (a figure well below that handled by the seven houses in 1950-51), the annual payment into the sinking fund would be about $9,000, or a total of $45,000 for the period of five years.

The financial position of most of the associations that would go into liquidation under a plan of consolidation is such that serious losses of capital (in excess of, say, 70 per cent) might be incurred only in the case of the Old Baldy Citrus Association and the Alta Loma Heights Citrus Association (see Table 24). If one of these houses is utilized as the third house in the plan, the possible loss of equity would be greatly reduced.

It is realized that this proposition is somewhat altruistic. It is advanced for consideration merely as a possible means of facilitating acceptance of a plan as an industry undertaking.

Subsequent Developments

It is unusual to be able to report actual progress because adjustments such as were outlined above often take several years to mature. The report to the boards of directors of the Ontario-Cucamonga Fruit Exchange and the eight local associations participating in the study was made in June, 1952. The boards of directors of several of the local associations considered that the future was so bleak that speedy action was necessary.

During the latter half of 1952, the board of directors of the Mountain View Fruit Association decided to discontinue operations. Arrangements were made to have the members with acreages of oranges (and grapefruit) join the Upland Citrus Association, whereas members with lemon acreages joined the new Cucamonga-Mesa Association. Negotiations are under way for the sale of buildings and equipment.

After protracted negotiation between the boards of directors of the Old Baldy Citrus Association and the Alta Loma Heights Citrus Association, it was decided that the packing house of the former should be operated as a

third house under the plan of consolidation. A new cooperative association chartered under the name of the Cucamonga-Mesa Growers was organized to operate as a combination house. The land, buildings, and equipment of the Old Baldy Citrus Association were purchased at a fair valuation. Both this association and the Alta Loma Heights Citrus Association are now in the process of voluntary liquidation. Most of the members of these two older associations, as well as those of the Mountain View Fruit Association, have become members of the new Cucamonga-Mesa Growers. This association appears to be assured of sufficient volume to be able to operate more nearly to full capacity during the next few years.

To date, no final action has been taken by the San Dimas Lemon Association, the Upland Heights Orange Association, and the Etiwanda Citrus Fruit Association. Indications are that the Upland Heights Orange Association may participate in the plan of organization during the next year or two. Because the newly organized Cucamonga-Mesa Growers organization is now operating at nearly full capacity, it would seem logical to conclude that, if the Upland Heights Orange Association decides to participate in the plan, the bulk of its members will affiliate with the Upland Citrus Association. Because of its excellent financial position, the Upland Heights Orange Association would appear to be able, in the event of liquidation, to pay its members in excess of 100 cents on the dollar on capital invested by members in the various revolving capital funds.

It is not possible to predict what final action will be taken by the San Dimas Lemon Association and the Etiwanda Citrus Fruit Association. The boards of directors of the Upland Citrus Association and the Upland Lemon Growers Association have gone on record as approving the plan of reorganization in principle, and have agreed to facilitate adoption of the plan in any way possible.

The proposition with regard to the establishment of a sinking fund received little active support, and can thus be eliminated as a consideration.

In conclusion, it may be stated that it is a matter of considerable satisfaction to the authors that the plan recommended was so generously accepted by the parties concerned and that so much positive action has been taken in such a short time.

Appendix Tables

CONTENTS

No.	Title	Page
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Appendix A

Appendix Table 1

Bearing and Nonbearing Acreage of Citrus Fruit in California: 1924-25 to 1950-51

Year	Bearing acreage (1,000 acres)				Nonbearing acreage (1,000 acres) 1/		
	Navels, misc. oranges	Valencias	Lemons	Grape-fruit	Navels, misc. oranges	Valencias	Lemons
1924-25	95.6	77.4	41.3	3.8	--	--	7.7
25-26	94.4	80.4	41.6	4.5	--	--	5.4
26-27	95.3	85.5	41.5	5.5	--	--	2.2
27-28	94.9	88.0	41.0	6.7	3.9	21.3	1.7
28-29	94.5	91.4	40.8	8.6	4.0	22.8	2.6
1929-30	94.2	95.9	40.5	10.1	4.6	19.5	4.1
30-31	93.7	98.8	40.7	10.8	4.9	20.9	4.2
31-32	93.4	103.9	41.0	11.3	5.5	22.9	5.1
32-33	92.5	107.9	40.7	12.1	5.7	26.2	7.7
33-34	89.2	108.7	40.2	13.1	7.4	24.0	9.1
1934-35	88.8	117.9	40.4	13.7	5.4	23.0	9.9
35-36	88.8	122.3	40.6	14.6	6.4	20.8	16.1
36-37	88.4	127.3	42.1	15.4	6.8	16.9	18.4
37-38	88.8	132.8	45.4	16.5	6.2	13.1	16.2
38-39	89.8	136.5	49.4	16.4	4.9	10.1	14.8
1939-40	90.5	138.7	52.0	16.4	3.8	9.9	14.1
40-41	90.5	140.6	54.1	15.4	2.9	9.1	14.6
41-42	90.3	141.8	55.7	15.1	2.1	8.8	13.6
42-43	90.3	143.4	57.1	14.7	1.6	7.7	11.6
43-44	90.5	145.5	60.1	14.8	1.4	6.3	8.4
1944-45	90.9	146.9	62.7	14.6	1.0	5.5	5.9
45-46	91.0	148.5	65.5	14.6	1.0	4.6	3.0
46-47	91.0	149.2	66.6	14.6	1.1	4.4	2.3
47-48	90.5	148.9	64.9	14.3	1.5	5.2	2.5
48-49	90.0	149.2	64.7	13.2	1.4	6.1	3.7
1949-50	80.7	134.9	58.2	10.4	2.0	10.1	4.5
50-51	79.5	132.4	54.4	10.0	1.9	8.9	7.3
51-52	78.7	132.1	54.7	--	--	--	--

1/ Information on grapefruit not available.

Source: California Fruit Growers Exchange. Statistical Information on the Citrus Fruit Industry. May 1951, pp. 5, 15, and 25.

[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Appendix Table 2

Production and Fresh Shipments of Citrus Fruit:
California and Arizona (1934-35 to 1950-51)
in Millions of Boxes

Year	Navels, misc.		Valencias		Lemons		Grapefruit (Calif. summer)	
	Production	Fresh Shipments	Production	Fresh Shipments	Production	Fresh Shipments	Production	Fresh Shipments
1934-35	19.1	17.6	26.1	22.3	10.8	7.2	1.5	1.2
35-36	14.6	13.8	18.2	16.7	7.8	7.4	1.1	1.0
36-37	13.3	11.3	16.7	11.4	7.6	6.5	.8	.6
37-38	16.9	15.8	29.4	24.3	9.3	7.8	1.1	1.0
38-39	18.2	15.1	23.6	18.7	11.1	7.8	1.0	1.0
1939-40	17.7	16.7	27.3	23.9	12.0	8.3	.9	.9
40-41	19.8	18.0	31.5	25.9	17.2	8.9	1.0	1.0
41-42	22.3	19.5	30.5	25.2	11.7	7.9	1.9	1.6
42-43	14.6	12.1	30.5	24.6	14.9	9.6	1.8	1.7
43-44	21.6	18.7	31.5	27.5	11.0	9.3	2.1	1.8
1944-45	22.6	19.9	39.0	30.1	12.6	9.6	2.3	1.9
45-46	18.3	16.1	27.0	21.0	14.5	9.1	2.2	1.5
46-47	20.3	18.0	34.5	25.0	13.8	9.4	1.9	1.4
47-48	19.4	16.3	27.2	19.7	12.9	8.5	1.5	1.1
48-49	12.4	9.4	25.3	14.5	10.0	7.8	1.3	1.1
1949-50	16.2	13.4	26.7	15.0	11.4	7.6	1.4	1.2
50-51	15.1	--	28.1	--	12.5	--	1.4	--

Source: California Fruit Growers Exchange. Statistical Information on the Citrus Fruit Industry, 1951.

[illegible]

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[illegible]	[illegible]											
[illegible]	[illegible]											
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Appendix Table 3

F.O.B. Prices and Costs of Producing and Handling
Navel Oranges in California

Year	Prices and costs				Percentage changes			
	Calif-Ariz f.o.b. price $/box	Cultural costs $/box	Picking, hauling $/box	Packing costs $/box	Calif-Ariz f.o.b. price % (a)	Cultural costs % (a)	Picking, hauling % (a)	Packing costs % (a)
1934-35	1.80	.59	.14	.45	98.9	81.9	93.3	93.7
35-36	1.95	.77	.15	.47	107.1	106.9	100.0	97.9
36-37	2.53	1.05	.17	.52	139.0	145.8	113.3	108.3
37-38	1.46	.65	.14	.46	80.2	90.3	93.3	95.8
38-39	1.38	.53	.16	.49	75.8	73.6	106.7	102.1
1939-40	1.60	.51	.14	.46	87.9	70.8	93.3	95.8
40-41	1.80	.46	.15	.48	98.9	63.9	100.0	100.0
41-42	1.82	.49	.20	.56	100.0	68.1	133.3	116.7
42-43	3.58	.90	.28	.57	196.7	125.0	186.7	118.7
43-44	3.73	.80	.29	.63	204.9	111.1	193.3	131.2
1944-45	3.90	.83	.31	.64	214.3	115.3	206.7	133.3
45-46	4.13	1.13	.35	.76	226.9	156.9	233.3	158.3
46-47	3.60	1.04	.32	.84	197.8	144.4	213.3	175.0
47-48	3.02	.98	.35	.92	165.9	136.1	233.3	191.7
48-49	4.27	1.61	.36	1.00	234.6	223.6	240.0	208.3
1949-50	3.56	1.40(b)	.35	.95	195.6	194.4	233.3	197.9
5-year averages:								
24-25 to 28-29	3.55	1.25	.18	.57				
29-30 to 33-34	2.30	.95	.15	.51				
34-35 to 38-39	1.82	.72	.15	.48				
39-40 to 43-44	2.51	.63	.21	.54				
44-45 to 48-49	3.78	1.12	.34	.83				

(a) Using 5-year average of 34-35 to 38-39 = 100%.
(b) Estimated.

Source: California Fruit Growers Exchange. Statistical Information on the Citrus Fruit Industry, 1951.

[illegible]

[illegible]

[illegible]

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Appendix Table 4

F.O.B. Prices and Costs of Producing and Handling
Valencia Oranges in California

Year	Prices and costs				Percentage changes			
	Calif-Ariz f.o.b. price $/box	Cultural costs $/box	Picking, hauling $/box	Packing costs $/box	Calif-Ariz f.o.b. price % (a)	Cultural costs % (a)	Picking hauling % (a)	Packing costs % (a)
1934-35	2.01	.56	.14	.45	86.6	71.8	93.3	93.7
35-36	2.61	.98	.15	.47	112.5	125.6	100.0	97.9
36-37	3.64	1.13	.17	.52	156.9	144.9	113.3	108.3
37-38	1.57	.62	.14	.46	67.7	79.5	93.3	95.8
38-39	1.78	.61	.16	.49	76.7	78.2	106.7	102.1
1939-40	1.89	.47	.14	.46	81.5	60.3	93.3	95.8
40-41	2.36	.47	.15	.48	101.7	60.3	100.0	100.0
41-42	2.99	.59	.20	.56	128.9	75.6	133.3	116.7
42-43	4.06	.75	.28	.57	175.0	96.2	186.7	118.7
43-44	4.39	.86	.29	.63	189.2	110.3	193.3	131.2
1944-45	3.90	.79	.31	.64	168.1	101.3	206.7	133.3
45-46	4.80	1.33	.35	.76	206.9	170.5	233.3	158.3
46-47	2.94	1.00	.32	.84	126.7	128.2	213.3	175.0
47-48	3.44	1.25	.35	.92	148.3	160.3	233.3	191.7
48-49	3.55	1.25	.36	1.00	153.0	160.3	240.0	208.3
1949-50	3.62	1.40(a)	.35	.95	156.0	179.5	233.3	197.9
5-year averages:								
24-25 to 28-29	4.28	1.46	.18	.57				
29-30 to 33-34	2.89	1.03	.15	.51				
34-35 to 38-39	2.32	.78	.15	.48				
39-40 to 43-44	3.14	.63	.21	.54				
44-45 to 48-49	3.73	1.13	.34	.83				

(a) Using 5-year average 34-35 to 38-39 = 100%.
Source: California Fruit Growers Exchange. Statistical Information on the Citrus Fruit Industry, 1951.

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[illegible]

[illegible]

Appendix Table 5

F.O.B. Prices and Costs of Producing and Handling
Lemons in California

Year	Prices and costs					Percentage changes			
	Winter Calif-Ariz f.o.b. price $/box	Summer Calif-Ariz f.o.b. price $/box	Cultural costs $/box	Picking, hauling $/box	Packing costs $/box	Summer Calif-Ariz f.o.b. price % (a)	Cultural costs % (a)	Picking, hauling % (a)	Packing costs % (a)
1934-35	2.18	3.39	.61	.32	.78	90.9	58.7	86.5	97.5
35-36	3.75	4.49	1.20	.36	.77	120.4	115.4	97.3	96.3
36-37	3.82	4.87	1.44	.39	.85	130.6	138.5	105.4	106.3
37-38	3.49	2.82	1.09	.40	.80	75.6	104.8	108.1	100.0
38-39	2.51	3.07	.85	.37	.81	82.3	81.7	100.0	101.3
1939-40	2.99	3.04	.94	.36	.80	81.5	90.4	97.3	100.0
40-41	2.43	3.19	.41	.34	.85	85.5	39.4	91.9	106.3
41-42	3.21	3.31	.77	.40	1.01	88.7	74.0	108.1	126.3
42-43	4.30	4.81	.72	.55	1.11	129.0	69.2	148.6	138.8
43-44	4.52	5.49	1.14	.61	1.20	147.2	109.6	164.9	150.0
1944-45	4.67	4.76	1.13	.67	1.24	127.6	108.7	181.1	155.0
45-46	4.70	4.19	1.17	.63	1.32	112.3	112.5	170.3	165.0
46-47	4.89	5.66	1.35	.67	1.41	151.2	129.8	181.1	176.3
47-48	4.78	5.89	1.33	.71	1.53	157.9	127.9	191.9	191.3
48-49	6.49	7.34	1.94	.74	1.59	196.8	186.5	200.0	198.8
1949-50	6.85	5.55	1.75	.73	1.55	148.8	168.3	197.3	193.8
5-year averages:									
24-25 to 28-29	3.66	4.65	1.23	.45	.88				
29-30 to 33-34	3.36	4.31	1.12	.39	.80				
34-35 to 38-39	3.15	3.73	1.04	.37	.80				
39-40 to 43-44	3.49	3.97	.80	.45	.99				
44-45 to 48-49	5.11	5.57	1.38	.68	1.42				

(a) Using 5-year average of 34-35 to 38-39 = 100%.
Source: California Fruit Growers Exchange. Statistical Information on the Citrus Fruit Industry, 1951.

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Appendix Table 6

F.O.B. Prices and Costs of Producing and Handling
Grapefruit in California

Year	Prices and costs				Percentage changes			
	California summer							
	Calif-Ariz f.o.b price $/box	Cultural costs $/box	Picking, hauling $/box	Packing costs $/box	Calif-Ariz f.o.b. price % (a)	Cultural costs % (a)	Picking, hauling % (a)	Packing costs % (a)
1934-35	1.32	--	--	--	123.4	--	--	--
35-36	1.64	--	--	--	153.3	--	--	--
36-37	1.80	--	--	--	168.2	--	--	--
37-38	1.07	.65	.10	.48	100.0	100.0	100.0	100.0
38-39	.98	.63	.11	.47	91.6	96.9	110.0	97.9
1939-40	1.11	.41	.10	.44	103.7	63.1	100.0	91.7
40-41	1.42	.45	.12	.44	132.7	69.2	120.0	91.7
41-42	1.92	.49	.16	.59	179.4	75.4	160.0	122.9
42-43	2.58	.59	.19	.52	241.1	90.8	190.0	108.3
43-44	2.95	.64	.23	.65	275.7	98.5	230.0	135.4
1944-45	3.19	.68	.25	.69	298.1	104.6	250.0	139.6
45-46	2.48	.91	.25	.72	231.8	140.0	250.0	150.0
46-47	2.28	.80	.23	.79	213.1	123.1	230.0	164.6
47-48	2.26	.75	.26	.87	211.2	115.4	260.0	181.2
48-49	2.79	.76	.24	.91	260.7	116.9	240.0	189.6
1949-50	2.82	.76	.26	.91	263.6	116.9	260.0	189.6
5-year averages:								
24-25 to 28-29	3.26	--	--	--				
29-30 to 33-34	2.12	--	--	--				
34-35 to 38-39	1.36	--	--	--				
39-40 to 43-44	2.00	.51	.16	.53				
44-45 to 48-49	2.60	.78	.25	.79				

(a) Using 1937-38 = 100%.
Source: California Fruit Growers Exchange. Statistical Information on the Citrus Fruit Industry. 1951.

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Appendix Table 7

Total and Unit Packing Costs (Unadjusted)

Alta Loma Heights Citrus Association
(Orange Department)

	1948-49		1949-50		1950-51	
Boxes packed	19,027		49,333		51,998	
All fruit handled (Packed box equivalent)	28,596		72,315		66,937	
	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs
Materials						
Shook (net)	$ 6,504	$.3418	$ 23,144	$.4691	$ 12,546	$.2416
Wraps	1,141	.0600	2,791	.0566	2,326	.0447
Other	870	.0457	2,885	.0585	2,610	.0502
Total materials	8,516	.4475	28,820	.5842	17,482	.3362
Labor	10,916	.3817	11,794	.1631	15,547	.2323
Total labor	10,916	.3817	11,794	.1631	15,547	.2323
Miscellaneous						
Light, power, water, gas	1,298	.0454	2,465	.0341	2,506	.0374
Equip. repairs	1,726	.0604	541	.0075	315	.0047
Insurance & bonds	466	.0163	1,478	.0204	1,276	.0191
Taxes & licenses	1,317	.0461	2,742	.0379	2,490	.0372
Office & telephone	553	.0193	621	.0086	453	.0068
Auto and travel	--	--	--	--	--	--
Employees' ins.	--	--	--	--	--	--
Precooler expense	2,247	.0786	1,241	.0172	3,104	.0464
Trucking	--	--	109	.0015	--	--
Other	582	.0204	840	.0116	1,707	.0255
Total miscellaneous	8,189	.2865	10,037	.1388	11,852	.1771
Salaries	4,070	.1423	4,490	.0621	4,285	.0460
Depreciation	--	--	4,310	.0596	9,573	.1430
Interest	2,142	.0749	4,168	.0576	3,260	.0487
Total packing expense	33,833	1.3329	63,621	1.0654	61,998	.9833

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Appendix Table 8

Total and Unit Packing Costs (Unadjusted)

Etiwanda Citrus Fruit Association
(Orange Department)

	1948-49		1949-50		1950-51	
Boxes packed			19,831		17,697	
All fruit handled (Packed box equivalent)			36,526		24,546	
	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs
Materials						
Shook (net)	$		$ 8,111	$.4090	$ 5,330	$.3012
Wraps			1,502	.0757	1,534	.0867
Other	Oranges packed by Upland Citrus		61	.0031	365	.0206
Total materials			9,675	.4878	7,229	.4085
Labor						
Supervision			1,437	.0393	1,185	.0483
Packing & house			6,979	.1911	5,282	.2152
Total labor			8,416	.2304	6,467	.2635
Miscellaneous						
Power, light, water & gas			1,151	.0315	1,422	.0579
Building & equip. repairs			614	.0168	271	.0110
Insurance			103	.0028	433	.0176
Payroll taxes			335	.0092	414	.0169
State & county taxes			691	.0189	434	.0177
Office supplies & expense			267	.0073	207	.0084
Telephone & telegraph			87	.0024	71	.0029
Packing & house supplies			603	.0165	308	.0125
Orange admin. comm.			186	.0051	119	.0048
Other			373	.0102	441	.0180
Total miscellaneous			4,410	.1207	4,120	.1678
Salaries			3,178	.0870	2,785	.1135
Depreciation			694	.0190	619	.0252
Interest			108	.0030	181	.0074
Total packing expense			26,481	.9479	21,401	.9859

Appendix Table 8

State and Local Funding Sources (Continued)

Alaska Public Utility Commission
(Dollars Rounded)

	Utility	1972-73			1973-74		
Power Policy							
(1) Electrical							
Indirect Expenditures							
		Expenditures			Expenditures		
		Per Annual Budget	Total Funds	Total Funds	Per Annual Budget	Total Funds	Total Funds
Salaries							
Salaries (Total)							
Travel							
Other							
Total Expenditures							
Other							
Supplies							
Equipment & Other							
Total Other							
Grants Other							
Other Expenditures							
Other Utility Water & Air							
Building & Equip. Repair							
Insurance							
Travel Other							
Home & Job by Loans							
Office Supplies & Expenses							
Telephone & Utilities							
Training & Dues Expense							
Young Adult Educ.							
Other							
Total Other Expenses							
Other							
Depreciation							
Interest							
Total Public Expense							

Appendix Table 9

Total and Unit Packing Costs (Unadjusted)

Mountain View Fruit Association
(Orange Department)

	1948-49		1949-50		1950-51	
Boxes packed			10,182		11,497	
All fruit handled (Packed box equivalent)			12,071		13,926	
	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs
Materials						
Shook (net)	(None of packing done at Mountain View.)		$ 4,185	$.4110	$ 4,606	$.4006
Wraps and labels			862	.0847	896	.0779
Other			520	.0511	418	.0364
Total materials			5,567	.5468	5,920	.5149
Labor						
Packing			1,395	.1370	1,491	.1297
Supervision			966	.0800	964	.0692
House			2,224	.1842	2,567	.1843
Total labor			4,585	.4012	5,021	.3832
Miscellaneous						
Utilities			187	.0155	147	.0106
Building & equip. repairs			407	.0337	189	.0136
Payroll taxes			248	.0205	377	.0271
Insurance & bonds			474	.0393	337	.0242
Taxes & licenses			1,219	.1010	604	.0434
Office supplies & exp.			216	.0179	173	.0124
Power			445	.0369	508	.0365
Telephone			68	.0056	54	.0039
Administrative comm.			104	.0086	91	.0065
Sunkist provident plan			411	.0340	404	.0290
Auto and travel			151	.0125	120	.0086
Other			53	.0044	106	.0076
Total miscellaneous			3,984	.3299	3,110	.2234
Salaries			1,778	.1473	1,520	.1091
Depreciation			315	.0261	1,434	.1030
Interest			352	.0292	228	.0164
Total packing expense			16,581	1.4805	17,233	1.3500

TABLE [illegible]

TOTAL [illegible] FOOD [illegible] (CONTINUED)

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Appendix Table 10

Total and Unit Packing Costs (Unadjusted)

Old Baldy Citrus Association
(Orange Department)

	1948-49		1949-50		1950-51	
Boxes packed			77,271		62,620	
All fruit handled			109,719		77,167	
(Packed box equivalent)	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs
Materials						
Shook (net)			$ 27,406	$.3547	$ 25,012	$.3995
Wraps			4,388	.0568	3,545	.0566
Labels & misc.	(Oranges packed by Upland Citrus Association.)		1,978	.0256	3,534	.0564
Total materials			33,772	.4371	32,091	.5125
Labor						
Packing labor			11,121	.1439	7,710	.1231
House & grading			20,423	.1861	16,537	.2402
Total labor			31,544	.3300	26,247	.3633
Miscellaneous						
Power, light, water & gas			2,212	.0202	3,391	.0439
Insurance			1,049	.0096	463	.0060
Taxes, licenses, SUC and OAB			5,345	.0487	4,376	.0567
Building & equip. repair			496	.0045	1,250	.0162
Office and telephone			482	.0044	436	.0057
Washer			791	.0072	--	--
Director's fees and provident plan 1/			800	.0073	766	.0099
Orange admin. committee			634	.0058	481	.0062
Agric. prod. lbr. comm.			23	.0002	70	.0009
Other			1,701	.0155	62	.0008
Total miscellaneous			13,533	.1234	11,295	.1464
Salaries 1/			10,832	.0987	4,546	.0589
Depreciation			2,888	.0263	4,577	.0593
Interest			92	.0008	307	.0040
Total packing expense			92,661	1.0163	79,063	1.1444

1/ Salaries, directors and provident plan were listed in Annual Reports as one figure, thus proration for salaries and for director's fees and provident plan are approximations.

Appendix Table 12

Total and Unit Salary Costs (Continued)

City of Cedar Rapids
(Page Twenty)

	1964-65		1965-66		1966-67	
Fire department			(4,273)			
(1 level needed			10,[illegible]		11,107	
(Salary for equipment)						
	Employees (for annual work-hours)	Unit costs	Employees (for annual work-hours)	Unit costs	Employees (for annual work-hours)	Unit costs
Salaries						
Regular (base)	8 [illegible]	[illegible]	[illegible]	$ [illegible]	[illegible]	$ [illegible]
Premium	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Longevity & other	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total salaries			22,172	[illegible]	[illegible]	[illegible]
Labor						
Training labor	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Power & cleaning	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total labor	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Equipment						
Power, light, water & gas	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Supplies	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Tires, tubes, [illegible] and [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Building & [illegible] repair	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Other equipment	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Other	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Insurance fees and premiums plus [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Engine [illegible], [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Other	1,[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total equipment	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Overhead [1]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Amortization	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Interest	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total annual expense	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Personnel, insurance and overhead data were allocated in manner similar to use Fleming, Lane operating for estimates are for Insurance fees, or overhead data or equivalent.

Appendix Table 11

Total and Unit Packing Costs (Unadjusted)

Upland Citrus Association

	1948-49		1949-50		1950-51	
Boxes packed	170,995		328,814		324,118	
All fruit handled (Packed box equivalent)	319,605		485,771		396,489	
	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs
Material						
Shook (net)	$ 67,565	$.3951	$129,948	$.3952	$116,368	$.3590
Wraps	13,250	.0775	25,109	.0764	22,678	.0700
Labels	1,322	.0077	1,744	.0053	1,663	.0051
Other	5,151	.0301	10,771	.0328	8,364	.0258
Total material	87,288	.5104	167,572	.5097	149,073	.4599
Labor						
Packing	24,523	.1434	42,596	.1295	40,458	.1248
Supervision	8,420	.0263	9,500	.0196	7,923	.0200
House	35,505	.1111	51,198	.1054	27,182	.0686
Grading	--	--	--	--	15,003	.0378
Total labor	68,448	.2808	103,294	.2545	90,566	.2512
Miscellaneous						
Light, power, water & gas	2,343	.0073	3,129	.0064	2,376	.0060
Building & equip. rep.	8,942	.0280	7,571	.0156	10,724	.0270
Taxes and licenses	4,194	.0131	4,330	.0089	3,830	.0097
Insurance and bonds	3,928	.0123	5,005	.0103	4,588	.0116
Office supplies & exp.	599	.0019	1,412	.0029	600	.0015
Auto and travel	860	.0027	613	.0013	626	.0016
Prorate expense	1,165	.0036	2,631	.0054	2,117	.0053
Payroll taxes	2,423	.0076	3,665	.0075	4,226	.0107
Other	3,983	.0125	9,035	.0186	3,331	.0084
Total miscellaneous	28,437	.0890	37,391	.0769	32,418	.0818
Salaries	12,141	.0380	12,375	.0255	15,755	.0397
Depreciation	10,230	.0320	9,579	.0197	10,677	.0269
Interest	276	.0009	364	.0007	594	.0015
Total packing expense	206,820	.9511	330,575	.8870	229,083	.8610

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Appendix Table 12

Total and Unit Packing Costs (Unadjusted)

Upland Heights Orange Association

	1948-49		1949-50		1950-51	
Boxes packed	27;586		139;529		147;246	
All fruit handled (Packed box equivalent)	55,135		200,075		170,742	
	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs
Material						
Shook (net)	$ 7,318	$.2653	$ 56;717	$.4065	$ 52;368	$.3556
Wraps	389	.0141	7,666	.0549	7;698	.0523
Labels	138	.0050	609	.0044	1,022	.0069
Miscellaneous supplies	277	.0100	985	.0071	740	.0050
Other	697	.0253	2,960	.0212	3,678	.0250
Total material	8,819	.3197	68,937	.4941	65,506	.4448
Labor						
Supervision	3;090	.0560	4;016	.0201	4;200	.0246
Packing	4;273	.1549	18;240	.1307	17,669	.1200
Separating	1,585	.0287	7;058	.0353	--	--
House	4,184	.0759	18,571	.1281	17,994	.1054
Total labor	13,132	.3155	47,885	.3142	39,863	.2500
Miscellaneous						
Light, power, water, gas	922	.0167	1;707	.0085	1,680	.0098
Repairs	1,863	.0338	1,532	.0076	4,029	.0236
Insurance & bonds	374	.0068	328	.0016	704	.0041
Taxes & licenses	1,116	.0202	1,143	.0057	1,234	.0072
Office supplies and exp.	240	.0044	394	.0020	557	.0033
Telephone	94	.0017	166	.0008	166	.0010
Orange admin. committee	142	.0026	1;365	.0068	1;046	.0061
Payroll taxes	746	.0135	1,684	.0084	2,294	.0134
Transportation of packers	30	.0005	--	--	--	--
Sunkist provid. plan ins.	1,342	.0243	1,342	.0067	1,604	.0094
Other	478	.0087	513	.0026	949	.0056
Total miscellaneous	7,347	.1332	10,174	.0507	14,263	.0835
Salaries	6,973	.1265	9,994	.0500	12,664	.0742
Depreciation	--	--	1,150	.0057	1,257	.0074
Interest	129	.0023	77	.0004	102	.0006
Total packing expense	36,400	.8972	138,217	.9151	133,655	.8605

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Appendix Table 13

Total and Unit Packing Costs (Unadjusted)

Alta Loma Heights Citrus Association
(Lemon Department)

	1948-49		1949-50		1950-51	
Boxes packed	28,971		41,910		62,557	
All fruit handled (Packed box equivalent)	47,408		56,099		83,514	
	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs
Materials						
Shook (net)	$ 14,092	$.4864	$ 17,951	$.4283	$ 20,071	$.3208
Wraps	4,114	.1420	1,766	.0421	5,949	.0951
Misc. supplies	743	.0256	749	.0179	2,514	.0402
Other	3,367	.1162	4,048	.0966	818	.0131
Total materials	22,317	.7703	24,514	.5849	29,352	.4692
Labor	24,802	.5232	21,849	.4525	36,411	.4360
Total labor	24,802	.5232	21,849	.4525	36,411	.4360
Miscellaneous						
Light, power, water, gas	4,401	.0928	3,195	.0570	4,633	.0555
Building & equip. repair	521	.0110	686	.0122	379	.0045
Insurance & bonds	891	.0188	699	.0125	2,047	.0245
Taxes & licenses	2,490	.0525	3,515	.0627	5,291	.0634
Office & telephone	720	.0152	693	.0123	689	.0083
Auto and travel	--	--	--	--	--	--
Employees' ins.	--	--	--	--	--	--
Air conditioning exp.	--	--	--	--	--	--
Precooler expense	2,222	.0469	2,504	.0446	3,555	.0426
Other	1,335	.0282	1,409	.0251	3,196	.0383
Total miscellaneous	12,580	.2654	12,701	.2264	19,790	.2371
Salaries	6,877	.1451	5,314	.0947	7,822	.0937
Depreciation	--	--	6,274	.1118	10,626	.1272
Interest	7,060	.1489	5,442	.0970	5,641	.0675
Total packing expense	73,636	1.8529	76,094	1.5673	109,642	1.4307

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Appendix Table 14

Total and Unit Packing Costs (Unadjusted)

Etiwanda Citrus Fruit Association
(Lemon Department)

	1948-49		1949-50		1950-51	
Boxes packed	51,986		21,565		30,655	
All fruit handled (Packed box equivalent)	75,707		28,536		48,705	
	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs
Materials						
Shook (net)	$ 20,233	$.3892	$ 6,650	$.3084	$ 12,163	$.3968
Wraps	6,181	.1189	2,288	.1061	3,404	.1110
Other	1,976	.0380	572	.0265	902	.0294
Total materials	28,390	.5461	9,510	.4410	16,469	.5372
Labor						
Supervision	3,000	.0396	1,563	.0548	2,053	.0422
Packing & house	31,261	.4129	13,285	.4656	18,880	.3876
Total labor	34,261	.4525	14,848	.5204	20,933	.4298
Miscellaneous						
Power, light, water, gas	3,292	.0435	1,251	.0438	2,463	.0506
Building & equip. repair	964	.0127	774	.0271	339	.0070
Insurance	1,139	.0150	112	.0039	750	.0154
Payroll taxes	1,114	.0147	668	.0234	1,144	.0235
State & county taxes	1,550	.0205	751	.0263	752	.0154
Office supplies & expense	605	.0080	290	.0102	359	.0074
Telephone & telegraph	161	.0021	94	.0033	124	.0025
Packing & house supplies	1,303	.0172	656	.0230	534	.0110
Lemon admin. comm.	751	.0099	204	.0071	365	.0075
Other	1,215	.0160	423	.0148	759	.0156
Total miscellaneous	12,095	.1596	5,223	.1829	7,589	.1559
Salaries	7,063	.0933	3,455	.1211	4,825	.0991
Depreciation	5,058	.0668	1,806	.0633	2,829	.0581
Interest	502	.0066	117	.0041	313	.0064
Total packing expense	87,369	1.3249	34,959	1.3328	52,958	1.2865

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Appendix Table 15

Total and Unit Packing Costs (Unadjusted)

Mountain View Fruit Association
(Lemon Department)

	1948-49		1949-50		1950-51	
Boxes packed			27,443		39,164	
All fruit handled (Packed box equivalent)			35,887		53,046	
	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs
Materials						
Shook (net)	(Upland Lemon		$ 10,871	$.3961	$ 14,165	$.3617
Wraps and labels	packed all lemons		3,058	.1114	3,553	.0907
Other	of Mountain View		1,723	.0628	1,832	.0468
Total materials	this year.)		15,652	.5703	19,550	.4992
Labor						
Packing			5,960	.2172	8,337	.2129
Supervision			2,322	.0647	2,589	.0488
House			10,529	.2934	15,816	.2982
Total labor			18,811	.5753	26,742	.5599
Miscellaneous						
Utilities			559	.0156	588	.0111
Building & equip. repairs			1,003	.0279	1,710	.0322
Payroll taxes			742	.0207	1,509	.0284
Insurance & bonds			1,414	.0394	1,348	.0254
Taxes & licenses			3,641	.1015	2,420	.0456
Office supplies & exp.			644	.0179	692	.0130
Power			1,329	.1370	2,034	.0383
Telephone			204	.0057	214	.0040
Administrative comm.			266	.0074	426	.0080
Sunkist provident plan			1,227	.0342	1,620	.0305
Auto and travel			449	.0125	480	.0090
Decco fruit treating			830	.0231	1,325	.0250
Other			150	.0042	424	.0080
Total miscellaneous			12,458	.3471	14,790	.2788
Salaries			5,308	.1479	6,087	.1147
Depreciation			1,923	.0536	5,048	.0952
Interest			1,050	.0293	914	.0172
Total packing expense			55,202	1.7235	73,131	1.5650

Appendix Table 15

Total and Per Capita Costs (Continued)

Economic Time Series Analysis
(Dollar Expenditures)

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Other Tangible Aid Total Handled (Except for Salaries)		[illegible]	[illegible]
	Expenditures (Per Capita) [illegible]	Expenditures (Per Capita) [illegible]	Expenditures (Per Capita) [illegible]
Assistance:			
Aid to [illegible]		[illegible]	[illegible]
Food [illegible]		[illegible]	[illegible]
Other		[illegible]	[illegible]
Total [illegible]		[illegible]	[illegible]
Other:			
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Total [illegible]		[illegible]	[illegible]
Other Tangible Aid Total Handled (Except for Salaries)		[illegible]	[illegible]
Administration:			
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Appendix Table 16

Total and Unit Packing Costs (Unadjusted)

Old Baldy Citrus Association
(Lemon Department)

	1948-49		1949-50		1950-51	
Boxes packed			46,020		84,868	
All fruit handled			77,485		130,243	
(Packed box equivalent)	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs
Materials						
Shook (net)			$ 18,053	$.3923	$ 36,709	$.4325
Wraps			4,701	.1022	8,646	.1019
Labels	(Part of crop		281	.0061	165	.0019
Other	packed by Upland		1,313	.0285	4,940	.0582
Total materials	Lemon Growers Assn.)		24,348	.5291	50,460	.5946
Labor						
Packing			9,619	.2090	16,102	.1897
House and grading			24,914	.3215	54,200	.4161
Total labor			34,533	.5305	70,302	.6058
Miscellaneous						
Power, light, water, gas			4,422	.0571	5,961	.0458
Insurance			695	.0090	813	.0062
Taxes, licenses, SUC and OAB			3,540	.0457	7,692	.0591
Building & equip. repairs			924	.0119	1,247	.0096
Telephone & office expense			319	.0041	766	.0059
Director's fees & provident plan 1/			1,000	.0129	1,347	.0103
Washer			1,357	.0175	--	--
Refrigeration			799	.0103	211	.0016
Lemon admin. committee			850	.0110	1,417	.0109
Other			672	.0086	124	.0010
Total miscellaneous			14,578	.1881	19,578	.1503
Salaries 1/			6,705	.0865	7,991	.0614
Depreciation			1,843	.0238	13,970	.1073
Interest			3,104	.0401	2,900	.0223
Total packing expense			85,111	1.3981	165,201	1.5417

1/ Salaries, director's and provident plan were listed in Annual Reports as one figure, thus the proration for salaries and for director's fees and provident plan are approximations.

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Appendix Table 17

Total and Unit Packing Costs (Unadjusted)

San Dimas Lemon Association

	1948-49		1949-50		1950-51	
Boxes packed	79,656		125,395		133,421	
All fruit handled (Packed box equivalent)	130,651		163,637		202,518	
	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs
Materials						
Shook (net)	$ 34,292	$.4305	$ 52,579	$.4193	$ 43,978	$.3296
Wraps	10,230	.1284	13,116	.1046	16,655	.1248
Labels	328	.0041	737	.0059	510	.0038
Nails, lumber, etc.	3,561	.0447	5,674	.0452	5,111	.0383
Other	5,123	.0643	3,586	.0286	1,364	.0102
Total materials	53,534	.6720	75,692	.6036	67,618	.5067
Labor						
Packing house	57,810	.4425	74,844	.4574	91,929	.4539
Total labor	57,810	.4425	74,844	.4574	91,929	.4539
Miscellaneous						
Light, power, water	4,987	.0382	5,266	.0322	6,858	.0339
Building & equip. repair	6,239	.0478	6,464	.0395	8,830	.0436
Compensation ins.	2,071	.0159	3,304	.0202	4,513	.0223
Insurance	3,645	.0279	2,315	.0141	3,390	.0167
County taxes	5,728	.0438	6,444	.0394	6,768	.0334
Social Security and st. unempl. ins. tax	2,554	.0195	3,213	.0196	5,681	.0281
Office supplies	1,201	.0092	820	.0051	729	.0036
Lemon adm. comm.	1,257	.0096	1,402	.0086	1,478	.0073
Fruit processing	5,077	.0389	--	--	--	--
Telephone & telegraph	--	--	445	.0027	567	.0028
Other	1,912	.0146	2,021	.0124	2,133	.0105
Total miscellaneous	34,671	.2654	31,694	.1938	40,947	.2022
Salaries	13,470	.1031	13,520	.0826	10,084	.0498
Depreciation	5,036	.0385	9,641	.0589	10,930	.0540
Interest	1,504	.0115	1,325	.0081	2,768	.0137
Total packing expense	166,025	1.5330	206,716	1.4044	224,276	1.2803

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Appendix Table 18

Total and Unit Packing Costs (Unadjusted)

Upland Lemon Growers Association

	1948-49		1949-50		1950-51	
Boxes packed	330,025		384,714		479,670	
All fruit handled (Packed box equivalent)	523,851		531,187		728,587	
	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs	Expenses (Per annual statement)	Unit costs
Materials						
Shook (net)	$ 120,293	$.3645	$ 164,655	$.4280	$ 201,189	$.4194
Wraps	33,918	.1028	42,120	.1095	51,389	.1071
Labels & paste	1,453	.0044	2,485	.0065	3,675	.0077
Frost separator fluid	9,422	.0285	--	--	--	--
Other	18,215	.0552	22,215	.0577	26,161	.0545
Total materials	183,301	.5554	231,475	.6017	282,414	.5887
Labor						
Foreman, house, labor and packing	201,619	.3849	229,328	.4317	315,766	.4334
Total labor	201,619	.3849	229,328	.4317	315,766	.4334
Miscellaneous						
Utilities	9,391	.0179	11,402	.0215	(Details not available.)	
Repairs	17,058	.0326	18,946	.0357		
Insurance and bonds	14,196	.0271	15,369	.0289		
Taxes and licenses	20,933	.0400	21,492	.0405		
Office expense	1,998	.0038	2,838	.0053		
Telephone	801	.0015	1,102	.0021		
Auto and travel	1,291	.0025	1,189	.0022		
Payroll and taxes	6,048	.0115	7,013	.0132		
Lemon admin. com.	5,306	.0101	6,951	.0131		
Truck expense (net)	1,263	.0024	551	.0010		
Fruit treating	7,978	.0152	11,416	.0215		
Other	1,886	.0036	2,264	.0043		
Total miscellaneous	88,149	.1682	100,533	.1893	121,415	.1666
Salaries	23,678	.0452	23,017	.0433	22,778	.0313
Depreciation	65,205	.1245	67,340	.1268	91,966	.1262
Interest	619	.0012	--	--	455	.0006
Total packing expense	562,571	1.2794	651,693	1.3928	834,794	1.3468

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Appendix B

Bases for Determining Unit Costs

I. Unadjusted Unit Cost Calculations.--Although the bulk of fruit received by packing houses each year is packed for shipment, varying annual proportions of low-grade fruit are diverted at the washer (and, in the case of lemons, also out of storage) to by-products plants. Small quantities of fruit are also sold loose (unpacked) by most of the houses. After consultation with various persons familiar with accounting procedures and problems in citrus packing houses, it was decided to group total expenses in packing houses under two main headings:

A. Direct costs incurred in packing fruit, which would include labor engaged in packing fruit, and packing materials (box shook, wrappers, nails, etc.). Although all houses made a rather detailed segregation of materials and supplies, some of the small houses lumped all labor costs together. In two of the larger houses and two of the smaller houses, however, labor costs were segregated under packing labor and general labor. Tests showed that, although the ratio of packing labor to total labor costs varied somewhat from year to year, there was not too great a difference in the ratio between houses in any one year.

In order to segregate packing labor from general labor, the ratios of the four houses were averaged for each of the three years as follows:

	1948-49	1949-50	1950-51
Oranges--packing labor	32%	38%	44%
Other labor	68%	62%	56%
Total labor	100%	100%	100%
Lemons--packing labor	34%	34%	34%
Other labor	66%	66%	66%
Total labor	100%	100%	100%

B. Indirect and overhead expenses in operating packing houses and conducting the general affairs of the associations. These included nonpacking materials and supplies, nonpacking labor, salaries, depreciation, interest and miscellaneous expenses.

Unit costs for packing only were calculated by dividing the direct costs for packing, as shown in the annual reports of the associations (modified for some houses as indicated above), by the total number of boxes packed and shipped. All fruit sold loose or shipped to products plants was converted for each house to a packed box equivalent, and added to the boxes packed.

Appendix B

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1. [illegible] [illegible] [illegible]

This figure was used as the divisor for determining unit costs for the indirect cost items. The packed box equivalents for orange departments include valencia and navel oranges, grapefruit, and small quantities of miscellaneous fruit. Total and unit costs so calculated are shown in Appendix B as unadjusted costs for each house.

II. Details: 1st Adjustment.--The comparability of cost data between houses was impaired because (a) of errors made in determining inventory in two houses; (b) the manner in which two houses handled retain income for loose or by-products fruit; and (c) differences in depreciation rates used. The adjustments made in total costs, and hence also in unit costs, for individual houses (1st Adjustment) were as follows:

A. Alta Loma Heights Citrus Association.

1. Labor costs for the orange department shown in the annual reports for 1949-50 and 1950-51 were increased by $6,862 and $3,269, respectively. Similarly, labor costs in the lemon department were increased by $5,685 and $8,417, respectively, in the two years. These amounts, representing retains for by-products fruit, had previously been credited to the labor account, a practice not followed by the other houses.

2. Shook costs for the orange department in 1950-51 were increased by $4,236, and other packing costs by $1,319. These increases were due to errors made in extensions of cost figures for the two categories of expense.

Another $2,749 was added to the 1950-51 cost figures for shook, and a similar amount deducted from the shook cost for 1949-50. A comparison of unit shook costs for 1949-50 and 1950-51 indicated an exceptionally high cost figure for the earlier year, and vice versa. A recheck of the 1949-50 inventory data disclosed that shook to the value of $2,749, charged to that year, was actually carried over and used in 1950-51.

3. Cost of wraps.--The unit cost for wraps (lemon department) of $.0421 in 1949-50 compared with $.1420 in 1948-49 and $.0951 in 1950-51. Although the actual reason for this discrepancy could not be traced, the manager of this association was of the opinion that an error had been made in the inventory for 1948-49, that year being debited for wraps actually used the following year. With the manager's approval, wrap costs for the two years were totalled and divided equally between the two years, thus giving more reasonable adjusted unit costs for wraps in each of the two years.

4. Depreciation: Orange Department.--No depreciation expense was provided in 1948-49; only $4,310 was provided in 1949-50 as compared with

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$9,573 in 1950-51. Inspection indicated that the latter figure appeared to be reasonable and in line with the depreciation charged by other houses. Calculation of depreciation for previous years, needed for purposes of comparison, presented several difficulties because, had normal rates of depreciation been charged in the two previous years, several capital items would have been completely written off by 1950-51.

For purposes of comparison, the book values for the beginning of the year 1949-50 were taken as a base. The set book values (original cost less accumulated depreciation) that would have been written off by 1950-51, if normal depreciation had been charged in previous years, were segregated. The net book values of such assets were divided by 4, assuming that they could have been written off on equal installments during the years 1947-48 to 1950-51. A flat rate of 2½ per cent on buildings and 10 per cent on equipment was charged on all other items. The depreciation on the cost of the precooler for oranges was excluded because most of the other houses did not operate precoolers. The following represents the computation of depreciation for the year 1949-50.

	Original cost	Accumulated depreciation	Net book value	Computed depreciation	
		Buildings			
	$	$	$	2½%	
Old building	29,696	23,957	5,737	742	
New building	60,694	1,134	59,560	1,517	
Box platform	1,232	37	1,195	31	
Cull bins	643	363	280	16	
					$2,306
		Equipment		Rate 10%	
Stack dumper	7,496	467	7,029	750	
Grading	11,954	744	11,210	1,195	
Conveyors	23,271	1,448	21,823	2,327	
Sizer equipment	20,139	5,927	14,212	2,014	
					$6,286
		Items that would be written off		Rate ¼ of N.B.V.	
Washing equipment	7,701	7,687	14	---	
Packing equipment	17,085	12,115	4,970	1,242	
Office furniture and equipment	2,152	1,738	414	103	
					$1,345
		Amount of depreciation computed			$9,937

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Adjustment of computed depreciation for 1948-49 was arrived at as follows:

The original cost of assets at the beginning of 1948-49 was $207,857, or $4,442 less than at the beginning of 1949-50, which represented equipment purchases during 1948-49. Depreciation on this amount would be $444. The depreciation of $9,937 for 1949-50 was thus reduced, by $444, to $9,493 for 1948-49.

In 1950-51, some $2,736 of packing equipment, on which depreciation would have been $274, was retired. The 1949-50 base computed depreciation was thus reduced by $274, to give $9,663 depreciation for 1950-51.

5. Depreciation: Lemon Department.--The year 1950-51 was again used as a base for computation of depreciation for 1949-50, the procedure being substantially the same as for the orange department. The following tabulation indicates the computations made:

	Original cost	Accumulated depreciation	Net book value	Computed deprec. 2½%
		Buildings		
	$	$	$	$
Storage and air conditioning bldg.	36,683	26,119	10,564	917
Cooling unit	3,177	2,483	694	79
New building	90,313	2,679	87,634	2,258
Box platform	1,232	58	1,174	31
Old building	20,527	19,289	1,238	309 (¼ of
				3,594 N.B.V.)
		Equipment		Rate 10%
Washing and packing	40,490	18,579	21,911	4,049
Storage fruit conv.	17,606	1,726	15,880	1,760
Grading table	7,412	406	6,906	741
Air conditioning	24,467	1,926	22,541	2,446
				8,996
		Items written off		Rate ¼ of N.B.V.
Old air conditioning	19,830	19,171	659	165
Office furn. & equip.	2,152	1,738	414	104
				269
		Total computed depreciation		$12,859

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About $5,522 of equipment was purchased in 1948-49--used fully only in following year. Depreciation at 10 per cent on this amount would have been $552. Depreciation for 1948-49 was computed as $12,859-$552, or $12,307; 1950-51 depreciation was computed as being approximately the same as for 1949-50.

B. Etiwanda Citrus Fruit Association.--The board of directors of this house followed the practice of providing for depreciation on a per box basis. In years of low volume of fruit handled, this resulted in a lower allowance for depreciation than would have been set aside under a straight-line basis of computation. In 1948-49, this house did not handle oranges, and so the full depreciation was charged against the lemon department. It was necessary, in each year, to increase the depreciation allowance using as a rough basis of computation 2½ per cent on buildings and 10 per cent on equipment. The adjustments for the three years were as follows:

1948-49

	Original cost	Accumulated depreciation	Deprec. provided by board	Computed depreciation
	$	$	$	$
Buildings	34,690	34,690	--	--
Annex building	1,419	1,419	--	--
New basement	8,112	3,203	203	303
Old mach. & equip.	32,565	26,337	1,756	1,730
New equipment	4,071	--	--	407
Refrigeration	14,409	8,830	1,109	1,441
New lemon washer	22,295	4,195	2,192	2,229
	Total to lemon department		5,057	6,110

1949-50

Computation for 1949-50 same as for 1948-49. The auditor allocated 27.76 per cent of total depreciation provided by board to the orange department, and 72.24 per cent to the lemon department. Using the same percentage basis for the higher computed figure, this would mean a debit of $1,696 to the orange department and $4,414 to the lemon department.

1950-51

	$	$	$	$
Total buildings and old equip.	76,786	--	--	--
Less equip. retired	2,826	--	--	--
	73,960	68,402	1,164	1,670
New equipment	5,827	--	--	583
Refrigeration	14,407	10,441	667	1,441
Lemon washer	22,295	7,347	1,617	2,229
				5,923

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The auditor allocated 17.95 per cent of depreciation provided by the board to the orange department and 82.05 per cent to the lemon department. Using the same percentage on the higher computed figure, the depreciation for the orange department would be $1,063 and for the lemon department, $4,860.

C. Mountain View Fruit Association.--This association did not operate in 1948-49, its fruit being handled by the large orange and the large lemon house. In 1949-50, the board of directors provided only $315 for depreciation in the orange department and $1,923 in the lemon department. In 1950-51, the board provided $1,434 depreciation of the orange department and $5,048 for depreciation of the lemon department.

A computation of depreciation allowing for 2½ per cent on buildings and 10 per cent on equipment for 1950-51 resulted in figures approximately equal to those provided by the board of directors. As no new equipment was purchased in either year, it was decided to accept the board's figures for 1950-51 and to use the same depreciation data for 1949-50. As a result, the depreciation (1st Adjustment) of the orange department was increased from $315 to $1,434, and of the lemon department, from $1,923 to $5,048.

D. Old Baldy Citrus Association.--A situation somewhat similar to the above occurred in the Old Baldy Citrus Association. No fruit was handled in 1948-49. During the next two years the board provided for depreciation as follows:

	1949-50	1950-51
	$	$
Orange department	2,888	4,577
Lemon department	1,843	13,970
Total	4,731	18,547

The computation made by the authors for 1950-51 gave figures for total depreciation approximately equal to those provided by the board. The board's figures were thus accepted for 1950-51 as allocated between the orange and lemon departments. Some equipment was retired in 1950-51. After including the value of such equipment in the computation for 1949-50 and using the same percentage distribution, depreciation allocated (1st Adjustment) was $4,648 for the orange department and $14,165 for the lemon department.

E. San Dimas Lemon Association.

1. Retains for by-products fruit.--This association deducted $6.00 a ton in 1948-49, $7.50 a ton in 1949-50, and $10 a ton in 1950-51 on all lemons sent to the by-products plant. This house followed the practice of

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crediting the income so obtained to various operating cost accounts and not to a packing house income account as was done in most other houses. The total retains for by-products fruit deducted in each of the three years, and the accounts to which such retains were credited, are shown in the following tabulation:

	1948-49	1949-50	1950-51
	$	$	$
House labor	11,275	12,485	19,339
Salaries	--	--	5,042
Depreciation	--	1,804	1,095
Field equip. (deprec.)	--	--	1,472
Total amount retained	11,275	14,289	26,948

For purposes of comparison these amounts, except the two items for depreciation in 1949-50 and 1950-51, were debited to the respective labor and salary accounts in the 1st adjustment for this house. The items for depreciation were excluded because adjustment for depreciation was computed separately.

2. Inventory Adjustment.--A carload of shook received toward the end of 1949-50 was charged to the shook expense for that year, but not shown in the end-of-the-year inventory. The shook account for 1949-50 was decreased by this amount, and that for 1950-51 increased by the same amount (1st Adjustment).

3. Depreciation.--This house ostensibly followed a straight-line method of depreciation, but appears to have varied the rates of depreciation allowed each year. The depreciation charged in the annual reports was $5,036 in 1948-49, $9,641 in 1949-50, and $10,930 in 1950-51.

For purposes of comparison, depreciation at the rate of 2½ per cent on buildings and 10 per cent on equipment was computed as follows:

	Original cost	Accumulated depreciation	Amount deducted	Computed depreciation
	$	$	$	$
	1948-49			
Buildings (2½%)	146,645	113,020	1,200	3,666
Equipment (10%)				
Packing	78,847	30,509	2,621	7,885
Office	6,037	3,972	226	604
Cooling system	38,446	15,504	660	3,844
Miscellaneous	--	--	329	--
			5,036	15,999
Less amount allocated to field equipment				999
Amount computed				15,000

	Original cost	Accumulated depreciation	Amount deducted	Computed depreciation
	$	$	$	$
	1949-50			
Buildings (2½%)	147,030	114,220	3,859	3,676
Equipment (10%)	74,117	33,130	5,229	7,412
Office	6,578	4,197	225	658
Cooling system	38,568	16,164	2,189	3,857
			11,502	15,603
Less credit by-products retains			1,804	
			9,698	
Less adjustment			57	
			9,641	
Amount computed (1st Adjustment)				15,603
	1950-51			
Buildings (2½%)	147,728	115,880	3,869	3,693
Equipment (10%)				
Packing	86,500	36,267	5,612	8,650
Office	6,720	4,187	367	672
Cooling system	41,868	18,331	2,248	4,187
			12,096	17,202
Less credit by-products retains			1,075	
			11,021	
Less adjustment			91	
			10,930	
Amount computed				17,202

F. Upland Citrus Association.--No adjustments were made.

G. Upland Heights Orange Association.--No adjustments were made.

H. Upland Lemon Growers Association.--This association has followed the practice of depreciating buildings and/or equipment at higher than usual rates in view of anticipated obsolescence of buildings and equipment that may result from new techniques in the handling of fruit. In 1948-49 this house provided for depreciation of buildings at the rate of 5 per cent, or double the rate used for computation in the other houses. The total amount provided for depreciation of buildings that year was $27,565. Computed depreciation on buildings at 2½ per cent was $13,614. The computed depreciation on equipment was approximately the same as that actually provided by the board. The total depreciation, as shown in the annual statement, was $65,205. This amount was reduced by $13,614 to give a computed depreciation of $51,591 (1st Adjustment).

A somewhat similar procedure was followed in 1949-50. The excess amount provided for depreciation of buildings was computed at $13,192. In addition,

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moveables (trucks, etc.) were depreciated at a rate of about 30 per cent. Using the more usual rate of 20 per cent would reduce depreciation on moveables by about $2,082, to give a total excess depreciation of $15,274. The depreciation for 1949-50 was computed as $67,340 (as per annual report)--$15,274 or $52,066 (1st Adjustment).

An even more rigorous policy of depreciation was adopted by the board in 1950-51. Buildings were again depreciated at a rate of about 5 per cent, but equipment was depreciated at a rate in excess of 10 per cent. An approximation of depreciation at the lower rates used in computing depreciation for the other houses was to use as a base the same depreciation as was computed for 1949-50, namely $52,066. In 1949-50 new equipment to the extent of $43,135 was installed; 10 per cent of this would be $4,314.

The computed depreciation for 1950-51 was thus $52,066 plus $4,314, or $57,380, as compared with $91,966 provided by the board for that year.

III. Details: 2nd Adjustment.

A. The primary purpose of the 2nd Adjustment was to increase the costs for 1948-49 and 1949-50 to the same levels as for 1950-51. This would permit a more valid comparison of the effect of volume upon unit costs during the three years. In other words, this procedure was intended to eliminate the effect upon unit costs of changes in the prices of cost factors.

Information was sought from various sources as to the nature and extent of price changes for the various items. The basic data used were the costs shown in the group of tables under the heading of 1st Adjustment. The percentage increases by cost categories for 1948-49 and 1949-50 are shown in the following tabulation:

	Percentage increase 1948-49	Percentage increase 1949-50
Wraps	12.92	14.08
Labels	8.11	8.11
Other materials	20.06	9.32
State and county taxes	10.45	6.63
Office supplies, telephone, telegraph	16.38	11.70
Building, equip. repairs	11.49	7.80
Salaries	5.00	5.00

No changes from the data shown in the 1st Adjustment group of tables were made for utilities, payroll taxes, directors' expenses, insurance and bonds, auto and travel, fruit processing, depreciation, and interest.

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B. Shook Costs.--The net amounts paid by associations to the Fruit Growers Supply Company for shook in each of the three years were:

	1948-49	1949-50	1950-51
Oranges			
Billing out price per box	40.44¢	40.44¢	40.44¢
Patronage refund per box	5.06¢	6.17¢	4.41¢
	35.38¢	34.27¢	36.03¢
Lemons			
Billing out price per box	42.89¢	42.89¢	42.89¢
Patronage refund per box	5.36¢	6.50¢	4.67¢
	37.53¢	36.39¢	38.22¢

In the 2nd Adjustment, shook costs were computed by multiplying the net costs per box shown above by the number of boxes of oranges and/or lemons packed by each house during each of the three years under study.

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